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ARCHEOLOGICAL EXPLORATIONS IN  
THE CORDILLERA VILCABAMBA  
SOUTHEASTERN PERU

PAUL FEJOS

New York • 1944

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CORNELIUS OSGOOD

*Editor*

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## PREFACE

THIS report illustrates and briefly describes the prehistoric sites and ancient roads surveyed by the Wenner Gren Scientific Expedition to Hispanic America in 1940-42 under the sponsorship of The Viking Fund. It was not originally intended to undertake archeological work in the Peruvian cordilleras, as the expedition was organized mainly for ethnographical research in the Peruvian montañas. When the expedition was returning from the area of the Madre de Dios in the southeastern lowlands of Peru, however, numerous natives in the vicinity of the Cordillera Vilcabamba informed us that in the scrub timber forests of the mountains extensive ruins lay covered by dense vegetation. These rumors persisted along almost the entire length of the expedition's route in the sierras, and because many of them roughly agreed as to the location of the ruins, it seemed likely that they were true.

At the request of the writer, the Patronato Arqueológico of Cuzco sent Sr. Roberto Rozas, Inspector of Antiquities, to verify the rumors. Sr. Rozas accompanied two native woodcutters, who led him to the overgrown site of Phuyu Pata Marka. Recognizing that some contribution to Peruvian archeology might be made if these sites were located and their clearing accomplished, the writer, with the approval of the Peruvian government, directed the expedition to this task. Several hundred laborers under the guidance of the scientific staff were employed over a period of months. Soon after starting, it became apparent that the first site was much larger than had been anticipated. As the work was extended, new discoveries were made. These culminated in bringing to light the towns of Wiñay Wayna and Inty Pata, each having a more extensive system of terraces than at Machu Picchu and indicating an intensive occupation for the area as a whole.

Had the magnitude of the work been realized beforehand, it might not have been started, as there was no archeologist on the staff and the writer does not feel qualified by training to undertake archeological research. It is hoped, however, that to a large degree this lack was compensated for by the aid of skilled photographers and draftsmen. Maps and drawings were made of each site and the whole region surveyed. Several thousand photographs show each stage in clearing ruins, as well as the details of construction. Insofar as possible nothing was disturbed of the aboriginal remains; our intention was always only to prepare the sites for more detailed study and to bring them to the attention of the prehistorian. It is therefore a satisfaction to report that Dr. Julio C. Tello, Director of the Museo de Antropología de Lima, has already begun work in the Vilcabamba region under the sponsorship of The Viking Fund, and we shall feel that our goal has been successfully attained if other equally distinguished scientists are attracted to this field.

The accomplishments of our expedition must be credited to a number of men. Dr. G. Kenneth Lowther, a geologist, was in charge of the topographic survey and is responsible for the geological and topographical information presented here. Professor J. M. B. Farfán of San Marcos University acted as linguistic expert, and Mr. C. Dreyfus Terry of the Museo de Historia Natural of Lima undertook zoological studies. The technical staff was composed of Mr. Albert Giesecke, Jr., transport officer; Messrs. N. Mathews and H. Feld, photographers; Mr. H. R. Besserman, radio operator and engineer; and Sres. M. Casaverde and J. Alarcon, topographers; Sr. E. Araujo, draftsman; Sres. L. Olazo and C. Kalafatovich, assistant topographers. Sr. Roberto Rozas, Inspector of Antiquities, was detailed to accompany the expedition by the Patronato Arqueológico of Peru.

Professor Paul R. Hanna of Stanford University, California, took part in the expedition during the uncovering and surveying of Phuyu Pata Marka. Also Mr. John H. Rowe, who at the time was serving as supervisor of the Southern Peruvian Project of the Institute of Andean Research, was the special guest of the expedition for several days during September, and again in October, 1941. We are especially indebted to him for valuable advice on certain technical procedures involved in clearing the ruins and for his counsel as a trained archeologist. Appendices A and B contain his personal reports on studies carried out by him at Sayac Marka and Choquesuysu.

Acknowledgments are due the Peruvian Government for numerous favors extended to the expedition. Lack of space prevents mentioning all the officials and scholars who on many occasions gave us assistance. Special thanks are due to Dr. Pedro Bustamante Santisteban, Assessor Técnico to the President of the Republic.

The members of the expedition also wish to express their obligation to Dr. Albert Giesecke, Attaché of the U. S. Embassy and former President of the University of Cuzco, who not only aided the expedition with valuable advice but also first suggested exploring the Vilcabamba area.

Similarly, we wish to express our gratitude to the Rector of the University of Cuzco, Dr. David Chaparro, and to Professors Corazao, Ponce de León, and Quevedo for their assistance, and to Dr. Carlos Morales Macedo, Director of the Museo de Historia Natural of Lima, for assigning a zoologist to the expedition.

Grateful thanks are also herewith extended to Dr. Julio C. Tello, Director of the Museo de Antropología of Lima, for his valuable aid and advice in the planning and organizing of this expedition. We would also pay homage to Dr. Hiram Bingham, whose Yale University-National Geographic Society expeditions led to the discovery of Machu Picchu and paved the way for future extensive research in this area.

This manuscript as originally composed suffered the deficiencies natural to a writer who is not an archeologist and who learned English in the latter part of his life. It was therefore his good fortune to have Professor Irving Rouse of Yale

University rework the manuscript and assist in selecting the illustrations so that they might have a maximum of value to the scholar.

Finally, the writer wishes to express his profound gratitude to Dr. Axel Leonard Wenner Gren, founder of The Viking Fund, and to the directors of that organization for the enthusiastic support and generous grant that made this research possible. Dr. Wenner Gren must also be credited with instigating the clearing and survey of the site of Choquesuysuy, for it was as a result of the findings of his exploration that the true extent of these ruins became known to the expedition.

In conclusion, the writer takes this opportunity to express his personal appreciation of the loyal support and assistance, often under trying circumstances, rendered him by all those who participated in the expedition.

PAUL FEJOS

New York City, 1942.

# CONTENTS

PREFACE . . . . .	5
INTRODUCTION . . . . .	13
Location . . . . .	13
Topographic Setting . . . . .	13
Climate . . . . .	16
Previous Work . . . . .	17
Work of the Expedition . . . . .	19
DESCRIPTION OF THE SITES . . . . .	20
Phuyu Pata Marka . . . . .	20
Sayac Marka . . . . .	29
Inty Pata . . . . .	33
Chacha Bamba . . . . .	37
Choquesuysuy . . . . .	41
Wiñay Wayna . . . . .	49
Some Smaller Sites. . . . .	51
Isolated Terraces . . . . .	53
Lookout Platforms. . . . .	54
Inca Roads . . . . .	54
SUMMARY . . . . .	59
APPENDIX A. Memorandum by John H. Rowe on Excavations at the Site of Sayac Marka . . . . .	61
APPENDIX B. Report by John H. Rowe on Excavations at Choquesuysuy	63
BIBLIOGRAPHY . . . . .	67
PLATES . . . . .	AT END



# ILLUSTRATIONS

## PLATES

PLATES WITH EXPLANATION APPEAR AT END OF TEXT

1. Phuyu Pata Marka from the Northeast
2. Phuyu Pata Marka from the East
3. Phuyu Pata Marka from the Northwest
4. Boulder in Plaza 1 at Phuyu Pata Marka
5. House Groups 1 to 4 at Phuyu Pata Marka
6. House Groups 3 and 4 at Phuyu Pata Marka
7. House Group 3 at Phuyu Pata Marka
8. Niches and Windows at Phuyu Pata Marka
9. Ring Stone and Stairway at Phuyu Pata Marka
10. Baths 2 to 6 at Phuyu Pata Marka
11. Baths 1 and 6 at Phuyu Pata Marka
12. Bridge at Phuyu Pata Marka
13. Terraces at Phuyu Pata Marka
14. Cave 1 at Phuyu Pata Marka
15. Northern Side of Sayac Marka
16. Uppermost Building at Sayac Marka
17. House Group 1 at Sayac Marka
18. Gable in House Group 2 at Sayac Marka
19. Niche in House Group 2 at Sayac Marka
20. Peg, Spout, and Ring Stone at Sayac Marka
21. Inty Pata from the Southeast
22. Clearing of a Terrace at Inty Pata
23. Upper Part of Inty Pata
24. Central Part of Inty Pata
25. Lower Part of Inty Pata
26. Stairway 2 at Inty Pata
27. Entrance Passage into House Group 3 at Inty Pata
28. Courtyard in House Group 3 at Inty Pata
29. Central House in Group 6 at Inty Pata
30. Lowest House in Group 6 at Inty Pata
31. Typical Terrace at Inty Pata
32. Chacha Bamba from Above
33. Central Buildings at Chacha Bamba

34. Boulder Shrine at Chacha Bamba
35. Boulder Shrine at Chacha Bamba
36. Boulder Shrine at Chacha Bamba
37. Plaza 1 at Chacha Bamba
38. Building between Plazas 1 and 2 at Chacha Bamba
39. Building between Plazas 1 and 2 at Chacha Bamba
40. Windows, Niches, and Stucco at Chacha Bamba
41. Building on the East Side of Plaza 2 at Chacha Bamba
42. Building on the South Side of Plaza 2 at Chacha Bamba
43. Building and Baths behind the Plaza Structures at Chacha Bamba
44. Baths 12 to 14 at Chacha Bamba
45. Eastern Part of Choquesuysuy
46. Central Part of Choquesuysuy
47. Western Part of Choquesuysuy
48. Eastern Cluster of Buildings at Choquesuysuy
49. Western Cluster of Buildings at Choquesuysuy
50. Ornamental Facade 2 at Choquesuysuy
51. Ornamental Facade 2 at Choquesuysuy
52. Ornamental Facade 2 at Choquesuysuy
53. Ornamental Facade 2 at Choquesuysuy
54. House Groups 1 and 2 at Choquesuysuy
55. House Group 2 at Choquesuysuy
56. Tunnel between House Groups 1 and 2 at Choquesuysuy
57. House Group 3 at Choquesuysuy
58. Niches and Alcove at Choquesuysuy
59. Western Room in House Group 4 at Choquesuysuy
60. Niches and Peg Stones in House Group 4 at Choquesuysuy
61. Niches Outside House Group 4 at Choquesuysuy
62. Fountain in House Group 4 at Choquesuysuy
63. Circular Pits beneath Ornamental Facade 2 at Choquesuysuy
64. Baths 1 to 5 at Choquesuysuy
65. Baths 1 to 5 at Choquesuysuy
66. Baths 2 and 3 at Choquesuysuy
67. Bath 2 at Choquesuysuy
68. Road behind House Group 5 at Choquesuysuy
69. Monolithic Steps in the Quebrada of Choquesuysuy
70. Stairway between House Groups 4 and 5 and 6 and 7 at Choquesuysuy
71. Eastern Terraces at Choquesuysuy
72. Masonry in Terrace Walls at Choquesuysuy
73. Grooves in Terrace Walls at Choquesuysuy
74. Masonry Details at Wiñay Wayna
75. Gable Wall at Wiñay Wayna

76. "Fortress" near Inty Pata
77. Isolated House between Phuyu Pata Marka and Sayac Marka
78. Ruin of Runcu Raccay
79. Road between Phuyu Pata Marka and Sayac Marka
80. Tunnel between Phuyu Pata Marka and Sayac Marka

### TEXT FIGURES

1. Map of the Cordillera Vilcabamba (after Bingham) . . . . .	14
2. Map of the Region Explored by the Wenner Gren Expedition . FACING	16
3. Plan of the Phuyu Pata Marka Ruins . . . . . FACING	20
4. Plan of House Group 1 at Phuyu Pata Marka . . . . .	22
5. Plan of House Group 3 at Phuyu Pata Marka . . . . .	23
6. Plan of House Group 4 at Phuyu Pata Marka . . . . .	24
7. Isometric Drawing of Bath 1 at Phuyu Pata Marka . . . . .	26
8. Isometric Drawing of Bath 2 at Phuyu Pata Marka . . . . .	27
9. Plan of the Sayac Marka Ruins . . . . .	30
10. Plan of the Inty Pata Ruins . . . . . FACING	32
11. Plan of the Chacha Bamba Ruins . . . . .	38
12. Plan of the Choquesuysuy Ruins . . . . . FACING	42
13. Plan of the Ruins of Wiñay Wayna . . . . .	50
14. Plan of the Small Ruins 200 Meters North of Sayac Marka . . . . .	52
15. Plan of the Ruin of Runcu Raccay . . . . .	55
16. Map of the Excavations by John H. Rowe at Sayac Marka . . . . .	61
17. Map of the Excavations by John H. Rowe at Choquesuysuy . . . . .	64
18. Cross Sections of the Excavations by John H. Rowe at Choquesuysuy	65



# INTRODUCTION

## LOCATION

THE ruins described in this paper are located in the Cordillera Vilcabamba in the southeastern part of Peru, within the province of Urubamba, department of Cuzco, and about 75 kilometers northwest of the city of Cuzco. They lie in canyons of the Urubamba River and its tributaries, and are concentrated in a comparatively narrow zone extending for about 8.5 kilometers up the left (south) bank of that river from the well-known site of Machu Picchu towards the modern town of Torontoy (Fig. 1).

The ruins are in an area of about 36 square kilometers which was mapped in detail to show the location of the individual sites (Fig. 2). This area lies immediately south of Machu Picchu and extends west and south from the Urubamba valley, across the mountain ridge separating this valley from the Aobamba which is a tributary of the Urubamba. Near the margins of the area mapped, Incaic roads continue in a southerly direction, some entering the valleys of the Aobamba tributaries while others have been observed on the east side of the Urubamba. It is planned to continue the exploration and mapping work in these directions in the future.

## TOPOGRAPHIC SETTING

In order to understand and view the topography of the isolated section under consideration in its proper perspective, it is necessary to have a general idea of the origin and character of the main topographic features of the cordillera. The Peruvian Andes consist of a high plateau with a comparatively gentle slope, above which rise steep mountains and below which are deep, narrow, rock-walled canyons. At present, the surface of this plateau is at an elevation ranging from 3900 to 4200 meters above sea level, where it constitutes the high, rolling, grass-covered *punas*. When it was formed, however, the cordillera was much lower. During this earlier period the main channels were developed and the site of the present cordillera reached a state of topographic maturity. The process of erosion produced an area of moderate relief and gentle slopes in which the more resistant rock masses remained as isolated hills and ridges rising above the general level of the country. In comparatively recent times this condition was followed by a great upheaval which caused the rivers to entrench themselves in deep, narrow canyons extending in many places to a depth of more than one and one half kilometers below the old plateau surface. At the same time, large erosion-resisting elements were raised above the old surface to form the lofty mountains of the eastern cordillera. At a

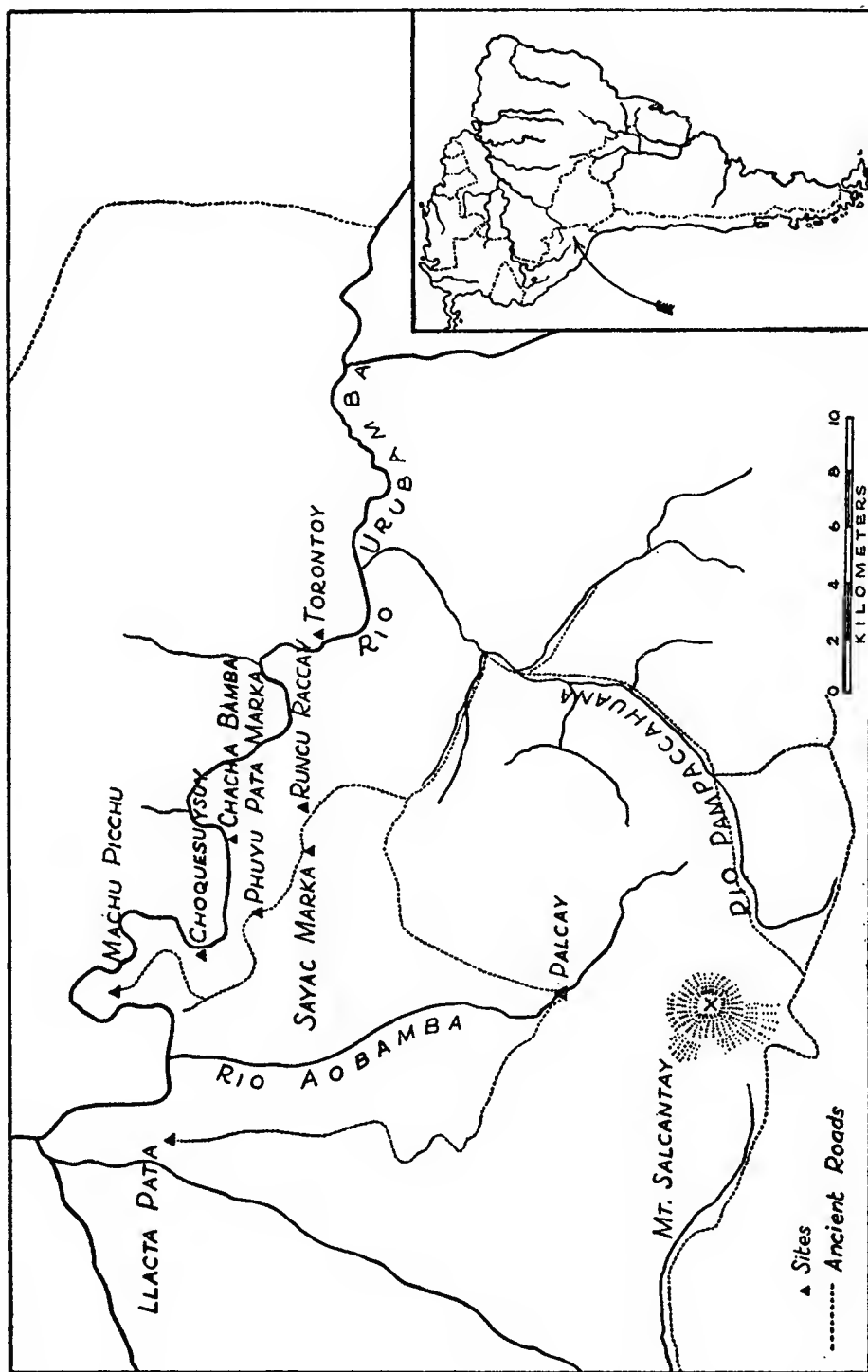


FIG. 1. MAP OF THE CORDILLERA VILCABAMBA (AFTER BINGHAM)

still later date, the topography underwent a further modification, by glacial action above a general level of about 4000 meters and by alluvial material below that level, this material being brought in by vast quantities of water during and immediately after the glacial period. In the western cordillera, volcanic action also played a large part in determining the present topography.

The Urubamba River is one of those which has carved a tremendous canyon into the old plateau surface. From its source southeast of Cuzco, this river flows in a general northwesterly direction and crosses the Cordillera Vilcabamba in the vicinity of Torontoy and Machu Picchu, whence it continues in a general northerly direction to Rosalina. From this point, the river swings southwest for about 60 kilometers and then resumes its northerly trend, crossing the front range of the Andes at the Pongo de Mainique. Finally, the Urubamba unites with the Apurimac to form the Ucayali, one of the large northward flowing tributaries of the Amazon.

In its upper and lower courses, the Urubamba passes through a comparatively gentle terrain. Above Torontoy, the softer rocks composing the plateau have been well eroded, and there are many alluvial fans suitable for cultivation. Below Colpani, where the gradient of the stream decreases, the river has deposited much fertile, alluvial material. The middle part of the valley, between Torontoy and Colpani, is quite different, however. In this section, the river cuts through the Cordillera Vilcabamba where the underlying rock is a hard, homogeneous granite, resistant to erosion, and the gentler slopes of the old plateau are no longer in evidence. Instead, the river flows through a narrow, deep, V-shaped canyon about one and one half kilometers in depth, which drops about 900 meters over a distance of approximately 30 kilometers. The borders of this canyon rise steeply from the river's edge and in many places, where the granite has broken off along the steeply inclined joint planes, almost vertical cliffs have been formed.

The grandeur and beauty of the Grand Canyon of the Urubamba, which is due partially to the deeply entrenched meanderings of the Urubamba and partially to the resistances of the underlying granite, are best exemplified by the mountain peaks of Machu Picchu and the neighboring Huayna Picchu. Here, where the river makes a U turn and encloses the two peaks on three sides, the mountains rise much higher than would be possible with softer rocks. Machu Picchu peak, for example, has an elevation of about 3050 meters, nearly 1000 meters above the level of the river to the east. Some 550 meters south of this peak, the river narrows to a width of little more than 200 meters. Here erosion has produced a steep ridge, the lowest elevation of which is 2780 meters. This ridge continues to the south with increasing elevations between the Grand Canyon of the Urubamba on the east and that of the Aobamba, its tributary, on the west. In the central part of the ridge, its summits are over 4000 meters. Its maximum elevation of 6264 meters is reached at Mount Salcantay about 16 kilometers south of the peak of Machu Picchu.

The ruins described below are located on or at the base of the ridge, closer to Machu Picchu than to Mount Salcantay. They lie along a number of small mountain streams, flowing either into the Urubamba canyon on the eastern side of the ridge, or into the Aobamba on the western side. Two short streams enter the Urubamba, at the sites of Chacha Bamba and Choquesuysuy (Fig. 2). Both flow in narrow, V-shaped channels and have their origin in a number of smaller streams which start as springs about 100 meters below the crest of the ridge. Waterfalls are numerous and the gradient is steep. For example, the total drop of the Choquesuysuy stream from the site of Phuyu Pata Marka at its headwaters to that of Choquesuysuy at its mouth is 1450 meters over a distance of about 2.4 kilometers.

The small streams mapped on the Aobamba side of the ridge flow in a northwesterly direction (Fig. 2). The lower portions of these streams, in the canyon of the Aobamba, occupy V-shaped valleys, but higher, the valleys show the effects of glaciation and are in marked contrast with the narrow valleys of the streams in the canyon of the Urubamba, which originate at lower levels.

South of Machu Picchu the first tributary of the Aobamba to show the effects of glaciation to any considerable extent is a broad U-shaped valley 900 meters north of the site of Sayac Marka. The bottom of this valley is nearly flat and is now occupied by a swamp. Rock walls rise steeply on either side of the valley and at the head there is an abrupt ascent of 300 meters to the divide. Glacial striae were observed at the bottom of the valley near the old Inca road from Sayac Marka to the site of Phuyu Pata Marka at an elevation of 3520 meters.

The larger valley on the other side of the Sayac Marka spur shows the effects of glaciation even more strongly. A large "roche moutonnée," well polished and striated by glacial action, occurs in the bottom of this valley at an elevation of 3515 meters, and higher, the wide U-shaped valley-bottom is occupied by a small lake. Further south, where the elevation is still higher, the effects of glacial sculpture are everywhere visible in the arêtes, or pinnacled ridges, as well as in the broad, U-shaped valleys with their small streams which drop as a series of waterfalls from one depression to another.

The areas occupied by timber and brush are outlined on the topographic map (Fig. 2). This growth is largely confined to sheltered valleys, where the water is more abundant, and to the southeastern slopes of the mountains where it extends upwards in a rather scrubby fashion to elevations of about 3700 meters. The drier northwestern slopes, as well as the broad, glaciated valleys above the tree line, are covered with grass. On steep slopes the soil is light and the vegetation in many places outlines the joint pattern in the underlying granite.

### CLIMATE

The climate of the area explored can be considered in terms of a rainy and a dry season. The former commences in the month of September and is characterized by violent electrical storms that persist almost to the month of May. The

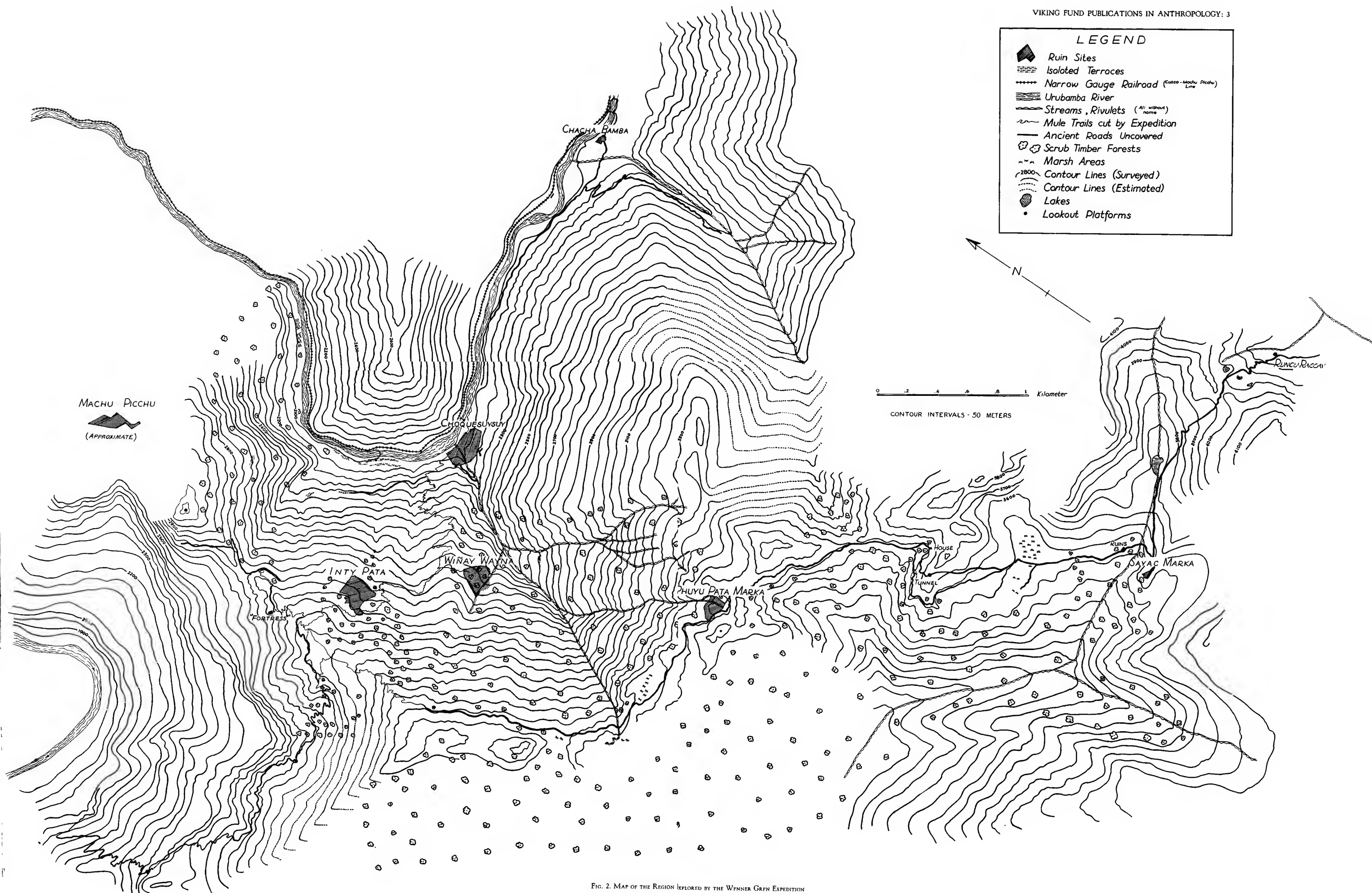


FIG. 2. MAP OF THE REGION EXPLORED BY THE WENNER GREN EXPEDITION

remaining months are comparatively dry, with a minimum of rain during July. During this dry period, the atmosphere is very clear and the visibility limitless even on top of the ridges, whereas throughout the rainy season the area is completely covered with fog.

Temperatures in the area vary greatly on account of the great difference in the altitude of the diverse sites. For example, at Choquesuysuy, which is located at the bottom of the canyon of the Urubamba, the noon temperature in October was 95 degrees Fahrenheit, whereas at Phuyu Pata Marka, on top of the ridge and at a height of nearly 4000 meters, it was 45 degrees Fahrenheit. The climate of this latter site is so rigorous during the rainy season that we found it hard to believe that the site was occupied during that part of the year in prehistoric times.<sup>1</sup>

### PREVIOUS WORK

None of the earlier explorers of the Cordillera Vilcabamba seems to have been aware of the existence there of Inca ruins, although Charles Wiener recorded a rumor concerning them in 1875. It was therefore a great surprise when Professor Hiram Bingham of Yale University announced in 1911 the discovery of a ruined city on a spur between the mountains of Machu Picchu and Huayna Picchu, in the heart of the cordillera. An expedition was organized under the joint auspices of Yale University and the National Geographic Society and four months were spent during the summer and fall of 1912 in clearing, mapping, photographing, and excavating the ruins.

The work at Machu Picchu proved to be the most important at any Inca site. Unlike the ruins already known, Machu Picchu was found to be purely Inca and without traces either of an earlier native occupation or of a subsequent Spanish population. It had never been looted, like the other sites, and therefore it provided an unusual wealth of artifacts and architectural details. In fact, Machu Picchu, with its 200 odd rooms and its elaborate system of terraces perched spectacularly on a mountain ridge 600 meters above the valley of the Urubamba River, has long been considered the typical Inca ruin. The various reports of the 1912 expedition still provide our best knowledge concerning the material aspects of Inca civilization.<sup>2</sup>

In 1915 Bingham led a second expedition to the vicinity of Machu Picchu, but he did no work at that site itself. Instead, the expedition spent two months clearing and excavating the ruins of Lacta Pata (also called Patallacta), a short distance down the canyon of the Urubamba from Machu Picchu, and devoted the rest of the time to an exploration of the adjacent sections of the Cordillera Vilcabamba in a search for additional ruins.

The work of this second expedition of Yale University and the National

<sup>1</sup> Sr. Carlos Dreyfus Terry, herpetologist of the Museo de Historia Natural of Lima, has made a botanical and zoological survey of this area. His findings are being published by the Lima museum.

<sup>2</sup> A list of these reports is contained in the bibliography.

Geographic Society to Machu Picchu has never been published in detail. Perhaps its greatest significance was to demonstrate that Machu Picchu during Inca times had been the metropolis of a thickly populated region, containing a number of lesser towns and villages linked with Machu Picchu by a well-constructed system of roads.<sup>3</sup> Bingham first encountered this system of roads in the valley of the Pampacahuana River, a tributary of the Urubamba which joins the latter a short distance above Torontoy (Fig. 1). He traced one of the Inca roads down the upper part of the Pampacahuana valley and into the valley of the Huayllabamba, a lesser tributary of the Pampacahuana. At the head of the Huayllabamba valley, the road forked, the left branch leading down into the valley of the Aobamba River past a small ruin called Palcay, and thence along the opposite slope of the Aobamba valley to Llacta Pata, the scene of the 1915 excavations and "probably the largest city tributary to Machu Picchu."<sup>4</sup> The right branch of the road proceeded along the rear slope of the Aobamba valley in the direction of Machu Picchu. A short distance beyond the fork was a small ruin known as Runcu Raccay, which consisted of several rooms arranged in a circle around a small courtyard. Bingham considered this a fortified rest house. Several kilometers beyond this ruin appeared another, to which was given the name of Cedrobamba (Sayac Marka). This was too extensive to be a mere rest house; Bingham calls it "one of the important fortified outposts subsidiary to Machu Picchu." Further along the road in the direction of Machu Picchu was another large group of ruins called Ccorihuayrachina (Phuyu Pata Marka); from it the road led along steep mountain slopes and the crest of a ridge into the site of Machu Picchu itself.<sup>5</sup>

The 1915 expedition also concerned itself with a number of other ruins not so closely linked with Machu Picchu, the most significant of which is Choquesuysuy. This is a "temple" on the left (west) bank of the Urubamba River, just upstream from (south of) Machu Picchu and at too low a level to be intersected by the road to the latter site. Choquesuysuy was visited briefly by one of Bingham's engineers in 1915 and is believed to have belonged to the late Inca period.<sup>6</sup>

With the termination of the 1915 expedition, archeological activity in the Vilcabamba region lapsed. No further work was done at the sites of Machu Picchu and Llacta Pata, and gradually they became covered with heavy underbrush as they had been before the clearing by Bingham and his party. The Peruvian government took little interest in the ruins until 1934, the four hundredth anniversary of the discovery and conquest of Peru, when an extensive program of archeological investigation was inaugurated under the direction of Dr. Luis E. Valcárcel,

<sup>3</sup> Bingham, *Further Explorations* (1916), 445-453; *Machu Picchu* (1930), 21-37.

<sup>4</sup> Bingham, *Further Explorations* (1916), 445-446.

<sup>5</sup> Bingham, *Machu Picchu* (1930), 21-37.

<sup>6</sup> The names of other ruins visited during 1912 and 1915 may be obtained from the maps published in Bingham's reports (*Wonderland of Peru* [1913], 388; *Further Explorations* [1916], 434-435; *Machu Picchu* [1930], 24).

Director of the National Museum of Peru. As a part of this program, the ruins of Machu Picchu were again cleared and the trail leading up to the site from the canyon of the Urubamba was improved. At present, the site may be easily reached from Cuzco by the railroad running down the canyon of the Urubamba and by the improved trail. The ruins have recently been visited by a number of scientists, including Professor Wendell C. Bennett of Yale University<sup>7</sup> and the writer.

### WORK OF THE EXPEDITION

The Wenner Gren Scientific Expedition was not concerned with the sites of Machu Picchu and Llacta Pata, where the Yale University-National Geographic Society Expeditions excavated, but rather with the various other sites discovered by Bingham along the ridge south of Machu Picchu. The expedition retraced the Inca road explored by Bingham, examined the sites mentioned by him, and was also fortunate enough to discover a number of new ruins.

As it had not originally been planned to undertake this archeological work, the expedition's personnel did not include an experienced archeologist and it proved impossible to obtain one upon so short notice. Accordingly, we limited our work at each site to the removal of vegetation, the clearing of the ancient roads and water channels, topographic surveying, the photographing of sites and ruins, and the construction of roads to the sites discovered. Except for several small test pits made under the direction of John H. Rowe of the Southern Peruvian Highlands Project of the Institute of Andean Research and described in Appendices A and B, no excavation was undertaken.

There were two periods of exploration at the sites: the first from the middle of September through the end of December, 1940, and the second from the first of July to the middle of November, 1941. During the first period, the work was concentrated at the sites of Phuyu Pata Marka and Sayac Marka. It had to be abandoned partly because of the rigors of the climate and partly because it was impossible to organize a larger personnel and to obtain the necessary implements for large-scale deforestation of the area. These difficulties were overcome the following year, however, and the work of clearing the other sites proceeded more or less simultaneously, with one or more members of the expedition in charge at each site. From 200 to 900 men were employed in this work.

Our photographers made several thousand pictures, showing each site in all stages of clearing. In addition, a group of three topographers spent the two periods in making a detailed topographic map of the area, using a scale of 1-7500 and a contour interval of 50 meters. The completed map (Fig. 2) covers an area of about 36 square kilometers and shows the location of all the individual ruins.

Altogether, six large sites and several smaller ones were cleared, mapped, and photographed. These sites are described below in the order in which they were discovered, regardless of their geographic position, as shown on Figure 2.

<sup>7</sup> Bennett, *Machu Picchu* (1935).



## DESCRIPTION OF THE SITES

### PHUYU PATA MARKA

PHUYU PATA MARKA, the first of the sites to be cleared by the expedition, is situated near the top of the steep ridge which borders the left bank of the Urubamba River above (south of) Machu Picchu (Fig. 2). It lies on the side of the ridge towards the Urubamba and at the head of the quebrada of Choquesuysuy (Pls. 1, 2, and 3). The site has a very impressive location on a small spur dividing the head of the quebrada and commands a magnificent view of the canyon of the Urubamba and of Machu Picchu mountain (Pl. 7). Only 100 meters above the site is the summit of one of the lesser peaks on the ridge, which reaches a height of 4000 meters (Pls. 1 and 2).

The ruins, which are in a region uninhabited today, lie along the Inca road followed by Bingham in his exploration of the approaches to Machu Picchu and were visited and described briefly by him.<sup>8</sup> In his day, they were covered by a thick accumulation of humus and dense vegetation so that he saw only the plaza and baths on the eastern side of the site, to which he paid little attention. His name for the site, Ccorihuayrachina, has been discarded, since it occurs also as a place name in the canyon of the Urubamba below, and for it we have substituted Phuyu Pata Marka, which signifies "Cloud-Level Town."<sup>9</sup>

The ruins were found buried under accumulated humus and vegetation on a steep slope (about 50 degrees), protected on both sides by ridges. Before the clearing of the site, the only visible indications of the city's existence were the wall tops of the uppermost terraces and one building. Lower terraces could be distinguished only by abrupt changes in the level of the vegetation. The expedition spent two months at the site, November and December, 1940. During this time, some 16,800 square meters (horizontal measurement—actually the area was much greater) were cleared of a thick growth of brush, and the accumulated earth covering was removed from the water channels and plazas on the eastern part of the site. The area cleared is only a small part of the site, which continued indefinitely down into the quebrada (Fig. 3).

The site is a relatively small one, consisting of two plazas, four house groups (in which there are fifteen buildings), one terrace house,<sup>10</sup> six baths, two roads,

<sup>8</sup> Bingham, *Further Explorations* (1916), 448; *Machu Picchu* (1930), 27.

<sup>9</sup> This name was selected by Professor Farfán after consultation with the expedition's Quechua carriers.

<sup>10</sup> As will be explained below, a terrace house is a building hollowed out of a terrace and having the same width and height as the terrace.

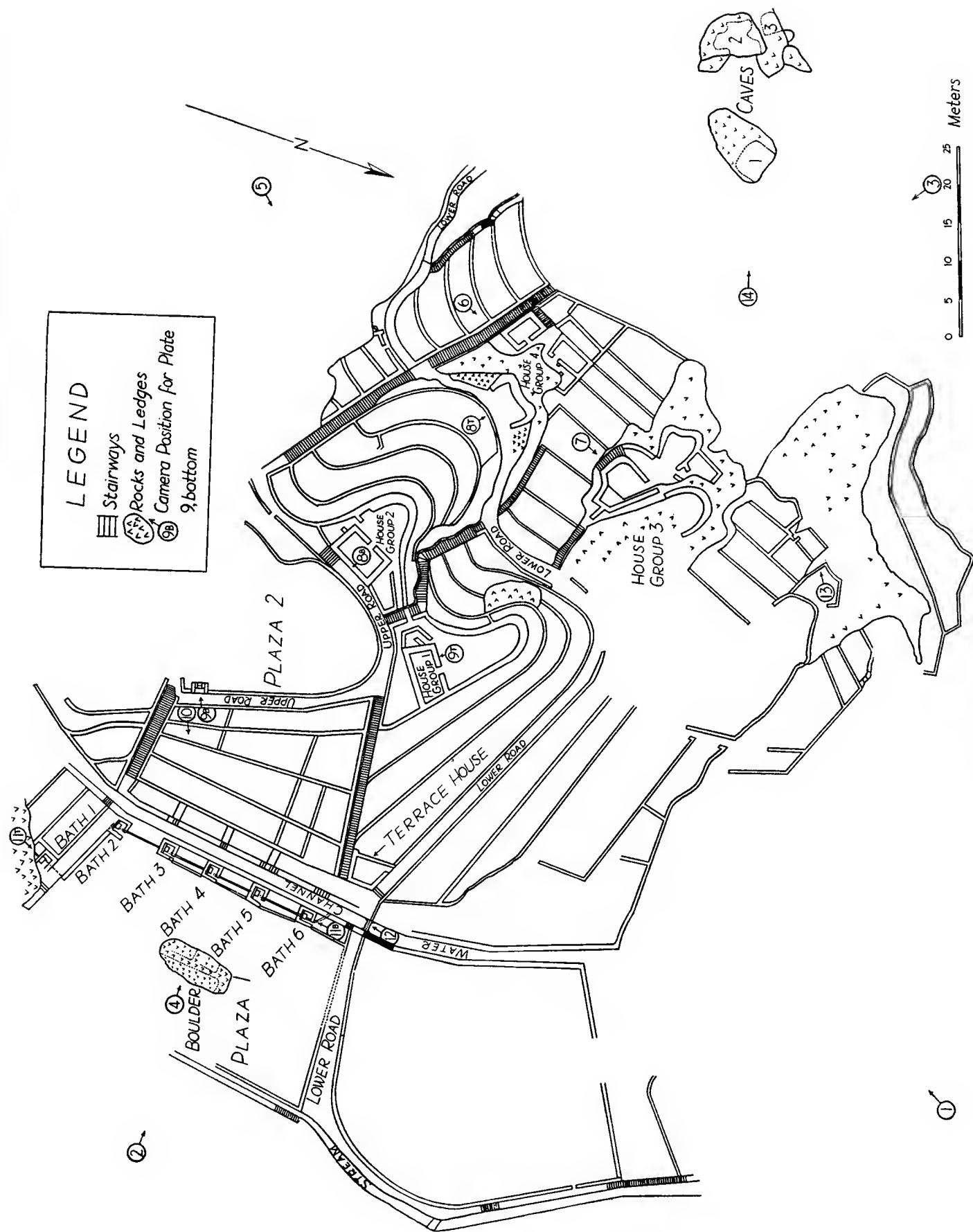


FIG. 3. PLAN OF THE PHUYU PATA MARKA RUINS

some twenty-one stairways, a large number of terraces, three caves, two masonry-lined channels whereby the stream of Choquesuysuy passes through the site, a bridge over one of these channels, and a lookout platform above the site at the top of the peak. No plan of arrangement of these structures has been noted, except that the artisans apparently took full advantage of the nature of the terrain by locating most of the terraces on the gradual eastern slope of the site and building the house groups on the steep rocky promontory to the west (Fig. 3). In the gradually sloping eastern part of the site, too, is situated the principal plaza (number 1 on Fig. 3), bordered on either side by a masonry channel for the stream and flanked also on the west by the row of baths, from which water flows to the stream. In the steeply sloping western area, the four house groups are each located within easy access of the roads, which run horizontally through the site, the first two house groups being close to the upper road and the other two to the lower road. At the very top of the site, midway between the two sections just described, is the large platform which has been designated Plaza 2 on Figure 3, although it may have served some other function. Except for two broken-down terrace walls in the middle of the site and one half-collapsed, curved building, the ruins were found in an excellent condition.

When discovered, Plaza 1 in the eastern part of the site was buried beneath a meter and one half of humus and moss which had been washed down from above when the stream channels on either side of it became choked and the water overflowed into the plaza. Clearing revealed that the whole plaza was paved with disintegrated granite and partially cemented. The pavement was broken in the center by a large carved boulder with two seat-shaped cuts on either side of it (Pls. 2, 4, and 10).

Plaza 2, to the west of the first one and at the very top of the site, is a huge granite outcrop which had at one time been artificially cut smooth. Its curved front edge is retained by a terrace wall of masonry, beautifully cut and fitted to follow the parabolic contour of the outcrop (Pl. 5). On and near the platform so formed were found many cut granite blocks and some green stones hollowed on top to serve as the bases of niches. It is possible that these loose blocks were brought here for the erection of some building on top of the platform, and that the latter was not intended to be a platform at all.

The upper road runs through the site at the base of Plaza 2, separating the latter from House Groups 1 and 2. These two house groups are on either side of a large promontory, which splits in two at this point (Fig. 3). The two are not typical house compounds;<sup>11</sup> each consists simply of a single rectangular structure with outbuildings, standing in an enclosure (Fig. 4 and Pl. 5). The rectangular houses each have a single doorway on the side towards the valley, and are provided with

<sup>11</sup> Consisting of a rectangular enclosure within which the houses are grouped symmetrically around a central yard in blocks of rectangular structures separated by corridors, as at Ollantaytambo.

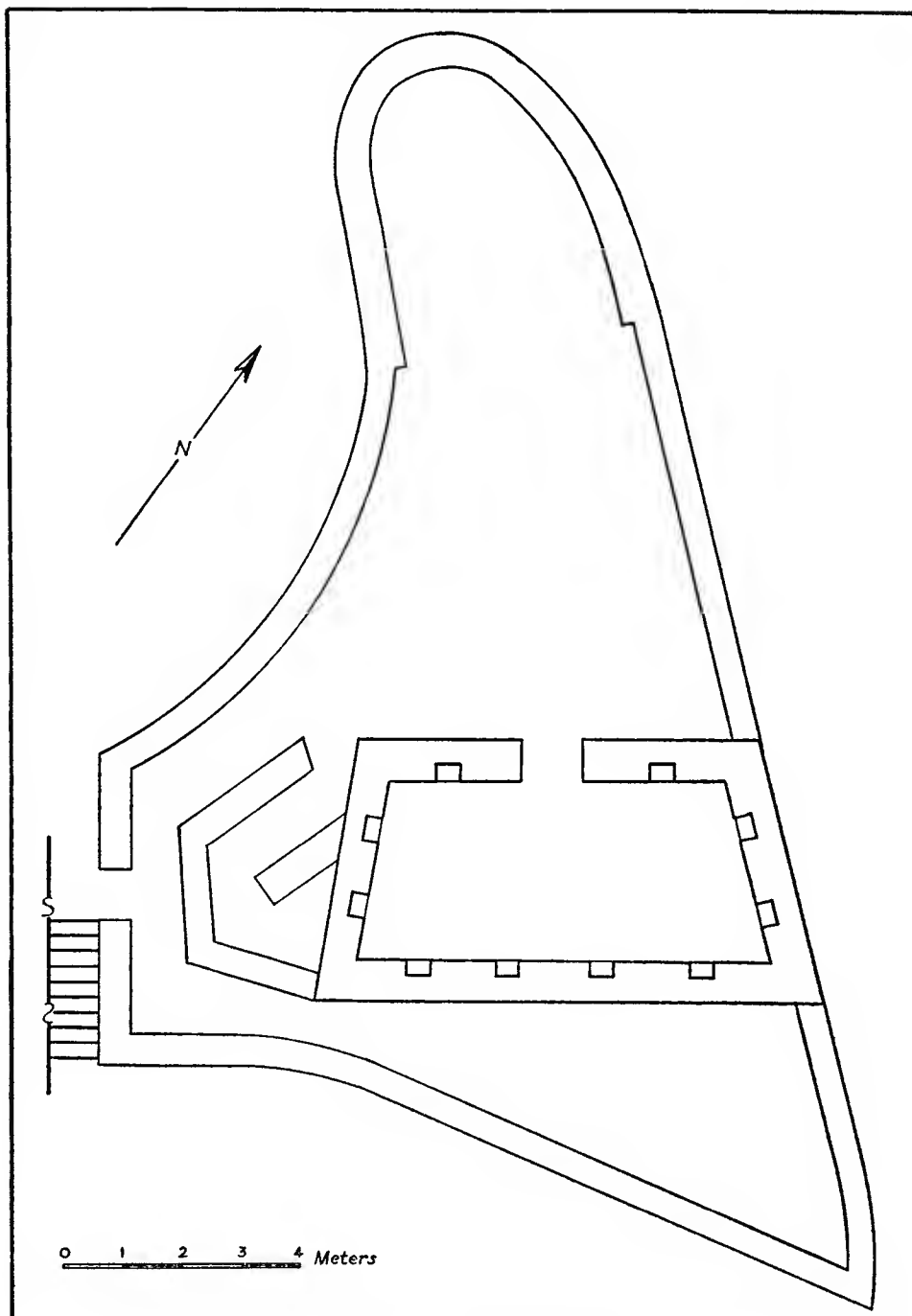


FIG. 4. PLAN OF HOUSE GROUP 1 AT PHUYU PATA MARKA

interior niches (Fig. 4 and Pl. 8, *BOTTOM*) and a row of three cylindrical peg stones along the back wall above the niches (Pl. 5). The outbuildings are of irregular shape but are also well built. The enclosure wall swings out in front of each house to a

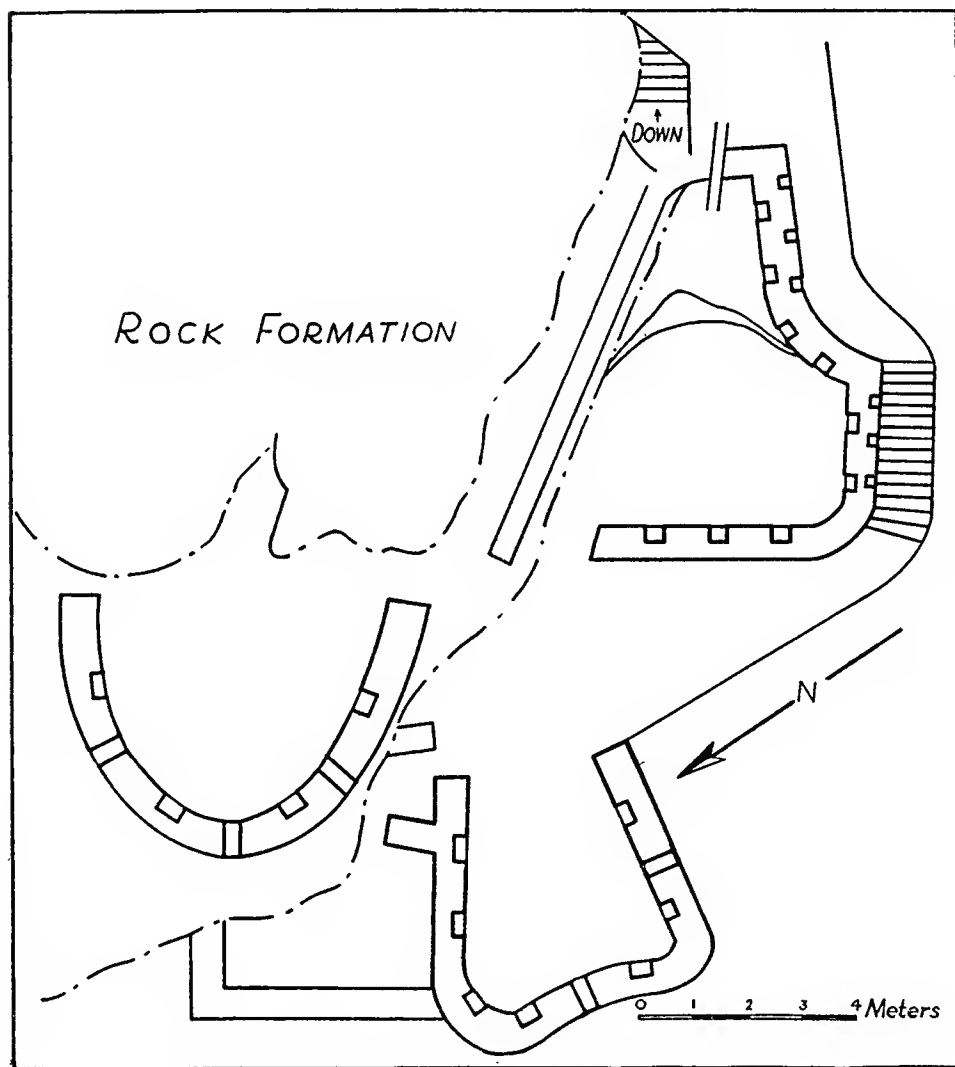


FIG. 5. PLAN OF HOUSE GROUP 3 AT PHUYU PATA MARKA

rounded point overlooking the valley, so that it takes in a large area in front of the house (Pl. 5). Each enclosure wall has three windows near the point. The two house groups are also separated from each other by a stairway which begins above the houses at the upper road and passes down the promontory through four terraces to the lower road (Fig. 3).

Below the lower road on each segment of the promontory are two other small groups of buildings. House Group 3, to the east, consists of four irregular buildings curved to fit the contours of a ledge in the middle of a large granite outcrop (Fig. 5 and Pl. 7). The northernmost building in this group is semicircular in shape and has an open back. The southernmost building, also irregular in shape, is divided inside into an upper and a lower level by a terrace wall, so that in order to

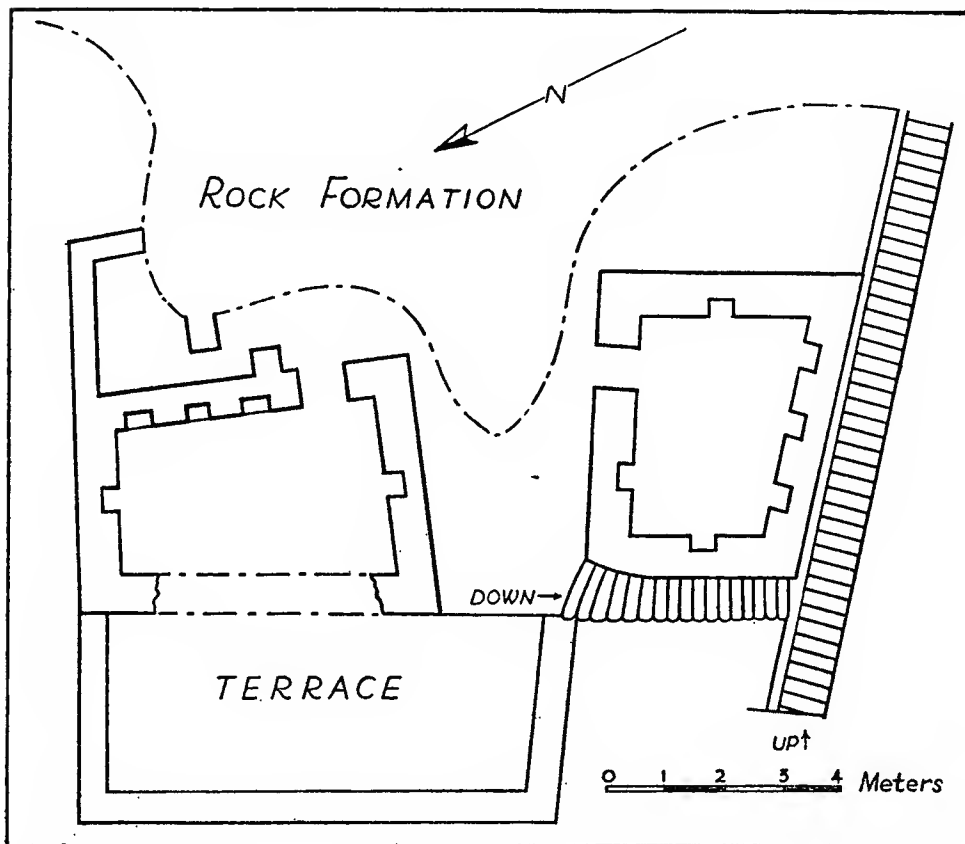


FIG. 6. PLAN OF HOUSE GROUP 4 AT PHUYU PATA MARKA

enter the upper level one must proceed along a ledge from the back of the building around to the front, and into the door at a higher level than the lower floor (Fig. 5). The walls of three of the houses have niches like those in the upper house groups; two of the houses are also provided with windows like those in the enclosure walls of the upper group (Pl. 6). House Group 3 has no such enclosing walls; the steepness of the granite outcrop prevents access except by the staircases.

The fourth house group is similar to the third, except that the three lowest buildings are more or less quadrilateral in shape, as they are on terraced soil at the

base of a granite outcrop (Fig. 6 and Pl. 6). On top of the outcrop is an irregularly curved wall forming a room with an open back (Pl. 8, top). One of the walls in this group contains the ring stone pictured on Plate 9, top. It is situated over a doorway and may have had some function in connection with the opening and closing of the door.

On the east side of the site, just above the lower road, is an isolated structure built into a terrace and referred to on Figure 3 as a "terrace house." It is an irregularly quadrilateral room hollowed out of the terrace. Its walls have the same width and height as the terrace; therefore the only outward indication of its existence is its door, which leads from the road into the terrace.

The walls of each house consist of roughly worked rectangular blocks of white granite, laid in horizontal courses. The stones are not as closely fitted as in the best masonry construction at Machu Picchu, but they compare well with the average at that site. All walls of houses are vertical unless they are extensions of terrace walls, in which case they slope slightly inwards. The walls of all buildings terminate horizontally from 1.5 to 2.5 meters above the floor; presumably they were provided with hip roofs rather than gables.

A small test hole in one of the upper houses showed that it had a floor of disintegrated granite like the pavement of Plaza 1. The floor was about 12 centimeters thick and rested on about 30 centimeters of small stones, under which was the original surface of the ground. The same flooring arrangement also occurs in the other houses. Aside from these tests, no clearing was done within the buildings.

The topmost of the six baths at the site is located on the upper (southern) side of Plaza 1, where it received its water from a small spring (Fig. 3 and Pl. 11, top). It consists of a small rectangular room having a flat floor, a pair of niches in the sides, and a deep rectangular basin in the front near the door (Fig. 7). The water appears to have entered the room through a hole in the back wall, and to have flowed down a groove in the floor to the basin. Below the first bath, the water ran in a masonry channel to the west side of Plaza 1, where it descended through five evenly spaced baths between the plaza and the main western channel of the stream to the bottom of the plaza and finally into the main channel (Fig. 3 and Pl. 10). Baths 2 to 6 are similar in construction to Bath 1 (Fig. 8 and Pl. 11, bottom).

Of the two roads which pass through the site, the lower one seems to have been the main thoroughfare (Fig. 3 and Pl. 1). Not only is it wider than the upper road, but also it passes directly through the center of the site, following the contour almost exactly. It is well paved and has stone steps on every incline, however slight. At one place, where the road passes a ledge, a bench has been carved out of the stone beside it. At another place, where the road crosses the main channel west of Plaza 1, a bridge has been constructed from a single giant slab of granite (Pl. 12). Both the lower and the upper roads may be branches of the main road leading to Machu Picchu, which was first traced by Bingham. (On Plates 1, 2, and 3 this road can be seen coming down the pass from Sayac Marka on the east

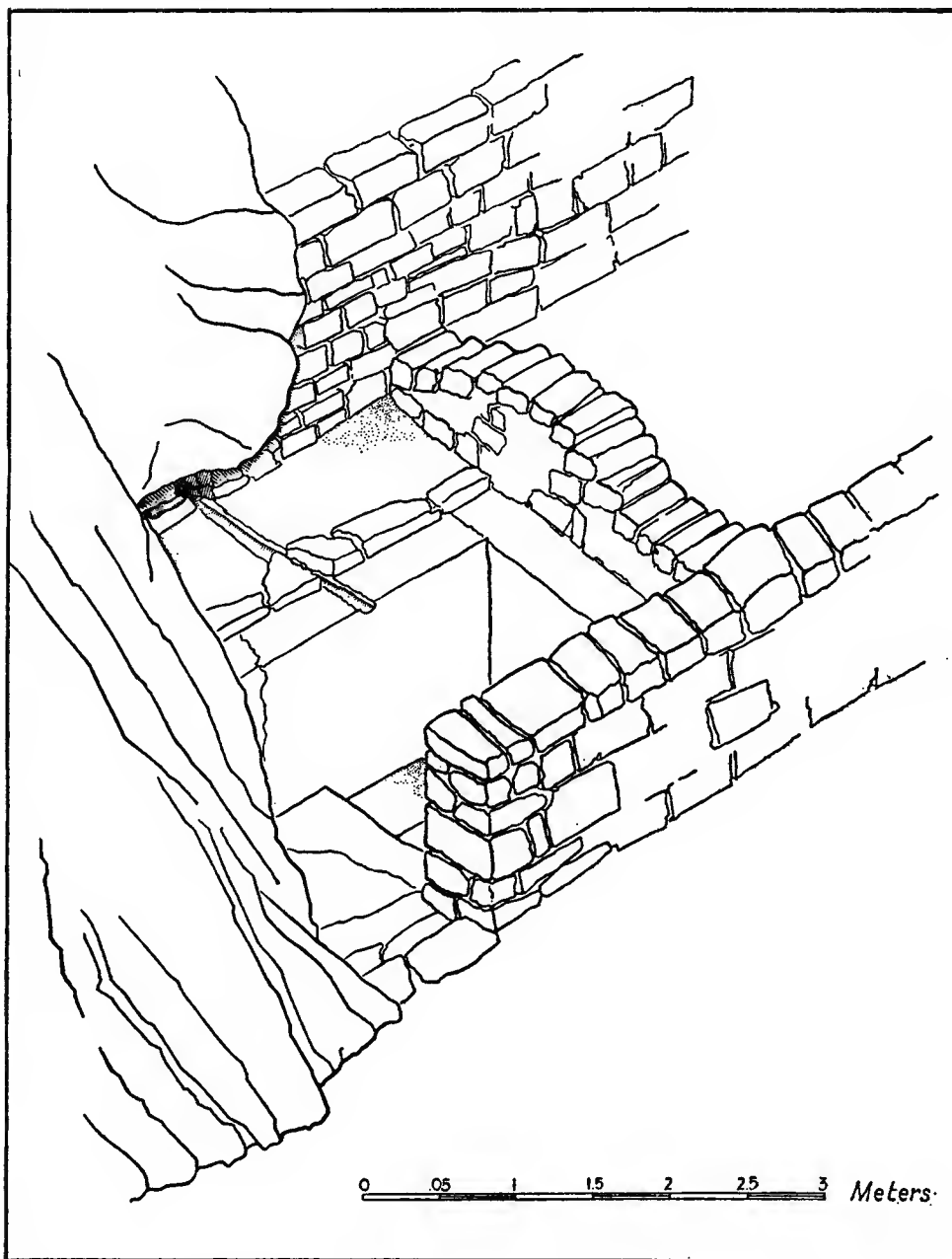


FIG. 7. ISOMETRIC DRAWING OF BATH 1 AT PHUYU PATA MARKA

and continuing westward along the slope of the ridge in the direction of Inty Pata and Machu Picchu.)

If the two roads be considered the main thoroughfares in the town of Phuyu



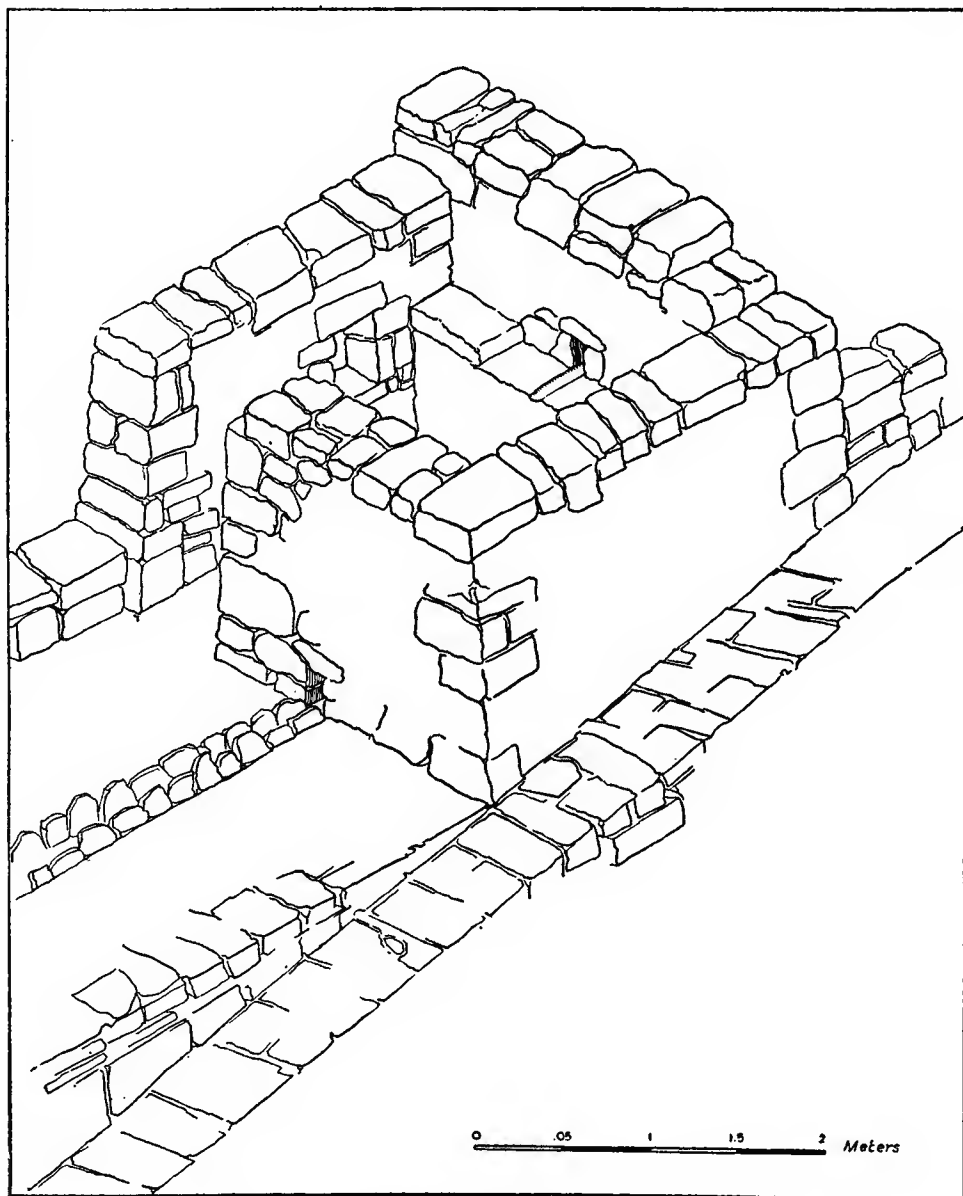


FIG. 8. ISOMETRIC DRAWING OF BATH 2 AT PHUYU PATA MARKA

Pata Marka, then the staircases might be regarded as the cross streets. They run up and down between and below the two roads, providing access to the plazas, the house groups, and the terraces. In part, they are constructed of stone blocks and in part, by hollowing out the solid rock; each has a small water channel beside it for drainage. All are very well preserved (Pl. 9, BOTTOM).

The system of terraces at Phuyu Pata Marka is very extensive and comprises a great majority of all the structures at the site. Each terrace is built of coarse rocks at the bottom and smaller ones towards the top which are overlaid by a varying thickness of clay and humus, usually about two thirds of a meter in depth. This material is held in place by an outer wall, 60 to 74 centimeters thick, constructed of stone, and usually sloping back towards the terrace at an angle of 15 to 20 degrees from the vertical. In most of the terrace walls, the stonework is comparatively rough. Although in all cases the stones have been carefully selected to fit into one another, they are small and have been very little trimmed except at the corners. Because of irregularities in the rocks, most of which are of white granite, the surfaces of the walls are rough and gaps of from 2.5 to 5 centimeters are frequently to be found. Along the tops of the walls, however, rather flat slabs of uniform size have been used to give the walls a finished appearance (Pls. 11 and 13).

The upper terrace around Plaza 2 and to a lesser extent the two lowest terraces are exceptionally well constructed. In these terraces, the rocks have been worked to provide a very close fit and are arranged in the walls for the most part in horizontal rows, as in the house walls. The outer surface of each rock, however, is slightly convex and this gives a pleasing appearance to the outer slopes of the walls (Pls. 9, BOTTOM, and 13).

Below the site on its northwest side is a group of enormous boulders under which three wide, low caves were carved in Inca times (Fig. 3). The caves were made by excavating the floor, cutting away the ceiling, and constructing side and back walls of masonry (Pl. 14). The ceilings are black and most of the floors are covered with several centimeters of black ash, but the fires which caused them were probably made by recent smugglers who may have hidden in the caves, since a careful examination showed no signs of ancient remains.

A hundred meters above the site, on the summit of a ridge, is a flat, circular terrace, once surrounded by a retaining wall but now largely broken down (Fig. 2). The platform may perhaps have been a signaling station, as it commands a good view of several similar constructions along the Inca roads of the region. The top has been thoroughly dug up by treasure hunters.

There seems little doubt that Phuyu Pata Marka was a small town and that the terraces were used for agricultural purposes. The people must have lived in the four house groups and perhaps in the terrace house and the caves. The two plazas—and particularly the first one which contains the large boulder—may have has a ceremonial significance, perhaps in connection with the baths alongside Plaza 1. Nevertheless, the site was probably primarily agricultural.

A small number of potsherds were found while clearing the floors of the plazas and houses. These sherds, which were very badly weathered, include Cuzco types, plain cooking pottery, and a few pieces of modern glazed pottery. They have been deposited in the Archeological Institute of Cuzco.

## SAYAC MARKA

Sayac Marka, or "Inaccessible Town," lies on the narrow top of a steep promontory on the other side of the divide from Phuyu Pata Marka, facing towards the Aobamba valley rather than the Urubamba and commanding a magnificent view of the former. It is on the Inca road from Huayllabamba to Machu Picchu, about halfway between the small ruin of Runcu Raccay and Phuyu Pata Marka (Fig. 1). Other roads leading down into the Aobamba valley almost certainly exist, but they have not yet been traced. The region of the site is today uninhabited.

The site of Sayac Marka was first discovered by Bingham in 1915, while tracing the Inca road to Machu Picchu.<sup>12</sup> In his opinion, it "undoubtedly represents one of the important fortified outposts subsidiary to Machu Picchu." He named the site Cedrobamba, a half-Quechua, half-Spanish name which is generally taken to denote the whole region in which these ruins lie, and which we have therefore changed to Sayac Marka.<sup>13</sup>

The expedition commenced work on this site on November 15, 1940, and finished a month later on December 15. The site was completely cleared of the overlying brush, but no excavation was done. On September 15, 1941, however, we brought Mr. John H. Rowe of the Institute of Andean Research to Sayac Marka, and he explored the floor of one of the buildings.

In sharp contrast to the situation at the other sites, nearly the whole area at Sayac Marka is made up of buildings and there are only three or four terraces suitable for agriculture. There are, moreover, no plazas. The buildings are compactly arranged within an entrance court and five successive house groups to take advantage of all available space upon the promontory. A total of twenty-one rooms and three baths are present, one of the latter being within a house group and the rest of them on terraces (Fig. 9).

The entrance to the site is from the east, where the promontory on which it stands joins the main mass of the ridge behind. The road leads into a small entrance courtyard, on the west side of which is a large semicircular building (Fig. 9 and Pls. 16 and 17). This building, which was probably roofed despite its size and its irregular plan, has a curved back wall provided with a series of small windows and built as the continuation of the retaining wall of a terrace. On one side, the wall turns partly inwards to enclose a part of the front of the building, most of which is open. The masonry of this construction is in excellent condition; it is composed of roughly cut stones placed in rectangular courses.

Opposite this building in the entrance courtyard is a slightly depressed area, the function of which is unknown. Nearby, a flight of stairs runs up to the main mass of the ridge, providing access to the spring from which water flows in a

<sup>12</sup> Bingham, *Further Explorations* (1916), 447; *Machu Picchu* (1930), 26-27.

<sup>13</sup> This name was selected by Professor Farfán after consultation with the expedition's Quechua carriers.

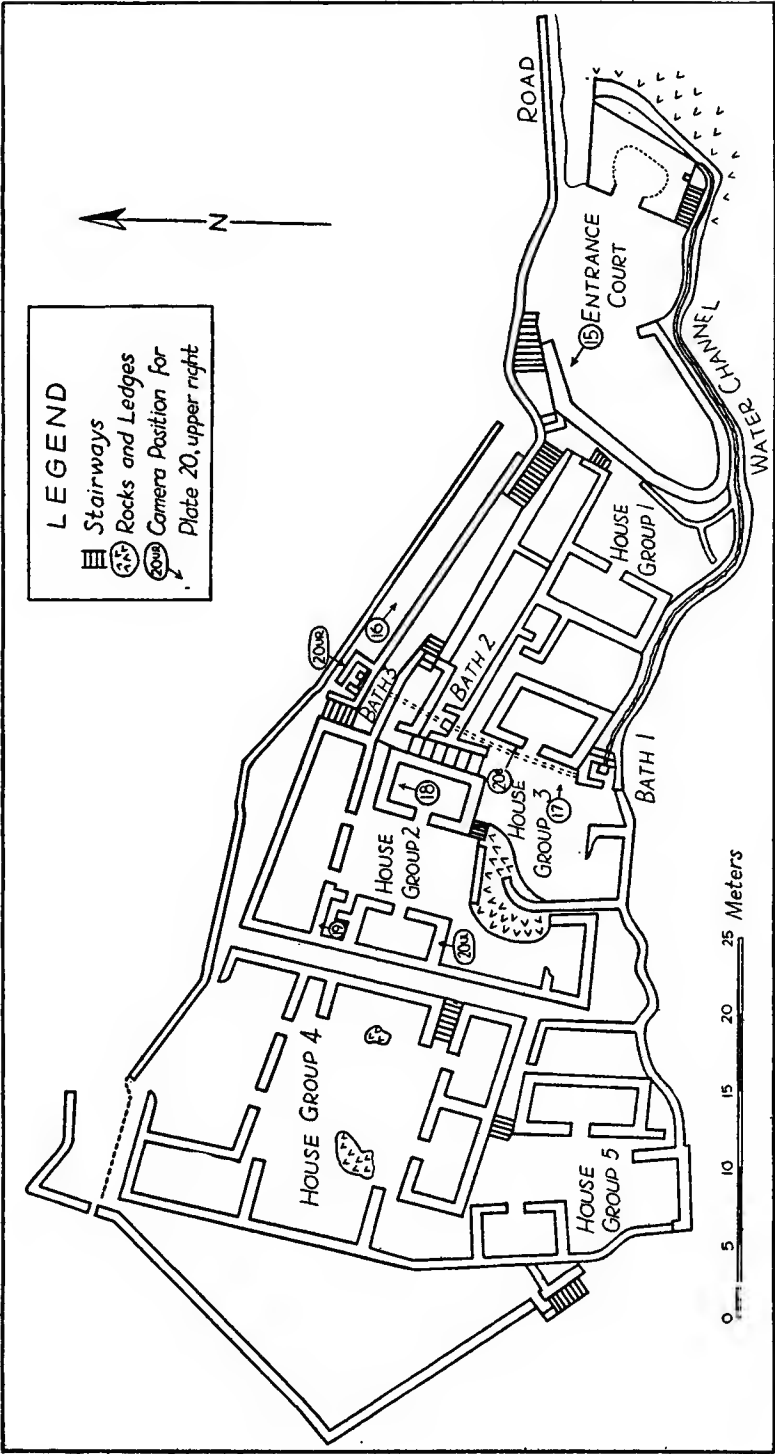


FIG. 9. PLAN OF THE SAYAC MARKA RUINS

masonry-lined channel down the south side of the site to the baths (Fig. 9).

From the entrance court, a flight of stairs leads down to the uppermost of three terraces on the northern side of the site (Fig. 9 and Pl. 15). Here the way forks; to the left is House Group 1; straight ahead along the terraces are House Groups 2, 3, 4, and 5. The first house group, which is the smallest, consists of a small court into which open two buildings, one large and rectangular, the other small and irregularly triangular (Fig. 9 and Pl. 17). Both houses, unlike those in some of the other groups, have flat walls without gables.

Continuing along the northern terraces from the first house group, one comes to another fork in the way. Up a stairway to the left is House Group 3; straight ahead lies House Group 2 (Fig. 9). These two groups are separated by a huge boulder of white granite which is carved on several surfaces. House Group 2 is a handsomely laid out affair and about as regular as any house compound at the site. Unlike the rest of the groups, there are two entrances to this compound, one from House Group 3 and the other from the terraces (Fig. 9). The central courtyard has on its east and west sides two handsome, rectangular buildings with stone gables (Pl. 18), pegs projecting from the gables (Pl. 20, UPPER LEFT), and separate single entrances. There is also a large room on the northern end of the courtyard and a smaller room to the south, which has an open front.

Beside the western building in House Group 2, one may observe a curious alcove with a winding entrance formed by two short wings which jut out from the opposite side walls and overlap to screen the front. The alcove has had four small niches around it, only one of which, that on the north side, is preserved complete (Pl. 19). This particular niche contains a sill consisting of a long, flat stone, longer and wider than the floor of the niche and capable of being securely fastened to the wall. In this sill was cut a shallow oblong basin about three centimeters deep, reaching across the whole width of the niche. A similar sill from the western niche was found on the floor above the alcove. The sills for the other two niches were missing. It was probably for niches like these that the loose green blocks found on the second plaza at Phuyu Pata Marka were made (see above, p. 21).

Under the direction of Mr. John H. Rowe, the floor of this alcove was cleared of its accumulation of dirt. It was found to consist of about one meter of humus and fallen stone underlain by ten centimeters of yellow and brown clay. Beneath the clay was a hard floor of disintegrated granite mixed with a little yellow clay. Mr. Rowe's report of the clearing of this floor, which is included in this paper as Appendix A, gives additional details concerning the clearing of the alcove.

At the entrance to the alcove, holes had been drilled through the corners of the doorposts at a height of about 1.05 meters above the cleared floor. The stone thus drilled on the left side of the door (and in the corner of the gabled house) is still in place. The right stone had fallen, but it was found lying in the courtyard. It is of particular interest because it has incomplete drill holes in three corners. Such drill holes have also been found in the edges of some niches at the site (Pl. 19).

House Group 3 is more irregular than the one just described. In it are three more or less rectangular houses and a bath, opening on a closed court. Unlike the courts in the other house groups, this one is divided in two by the largest room, which is placed exactly in the center of the house group. None of these rooms is gabled, although they are provided with niches, there are ring stones above several doors (Pl. 20, BOTTOM), and a few of the corners are pierced. The water channel from the spring east of the site runs through the floor of this house group, supplying the bath located there and continuing to the two baths in the terraces north of the house groups (Fig. 9).

The two remaining house groups at Sayac Marka are further west and at a lower level than the three just described. To reach them, one must descend to the lowest of the northern terraces and pass to the back of House Group 2, where a narrow passage leads south through the site, opening to the west upon the two remaining house groups (Fig. 9). House Group 4, to which one descends by means of another staircase, consists of seven good-sized buildings arranged around the largest courtyard at the site. None of these buildings is gabled, nor are there any other peculiar architectural features. The north building has a double entrance instead of the usual single doorway, while the east and west buildings are provided with an open front like the buildings by the so-called Sacred Plaza at Machu Picchu.<sup>14</sup>

House Group 5 is smaller and somewhat more irregular than the one just described (Fig. 9). It is built on two levels, connected by a staircase. The upper level contains two rectangular rooms; on the lower level is the courtyard and two more rooms, one of which has an open front. None of these rooms is gabled; nor are there any ring stones, niches, or pierced corners.

There are two drainage systems at the site of Sayac Marka, one in connection with the baths, and the other to drain the houses and terraces. The three baths, one of which is in House Group 3 and the rest on terraces, consists of small rectangular rooms. The water enters through the rear wall and flows out through a shallow basin in the floor. Niches are present in the walls of all three baths; one of them has two entrances.

In each house and on each terrace are a series of masonry-lined gutters, which apparently served to drain water from the terraces. These lead from terrace to terrace by a series of spouts (Pl. 20, UPPER RIGHT), from which the water falls to a gutter on the terrace below.

The stairways at the site are of masonry construction, and several of them are provided with small ridges, grooved at the bottom, which probably served as handholds. These handholds, as well as the other architectural details such as ring stones, pegs, and pierced stones, should be the object of more detailed study when additional work is done at the site.

It is interesting to note that the few terraces are all on the sunny northern

<sup>14</sup> Bingham, *Machu Picchu* (1930), 56-66.

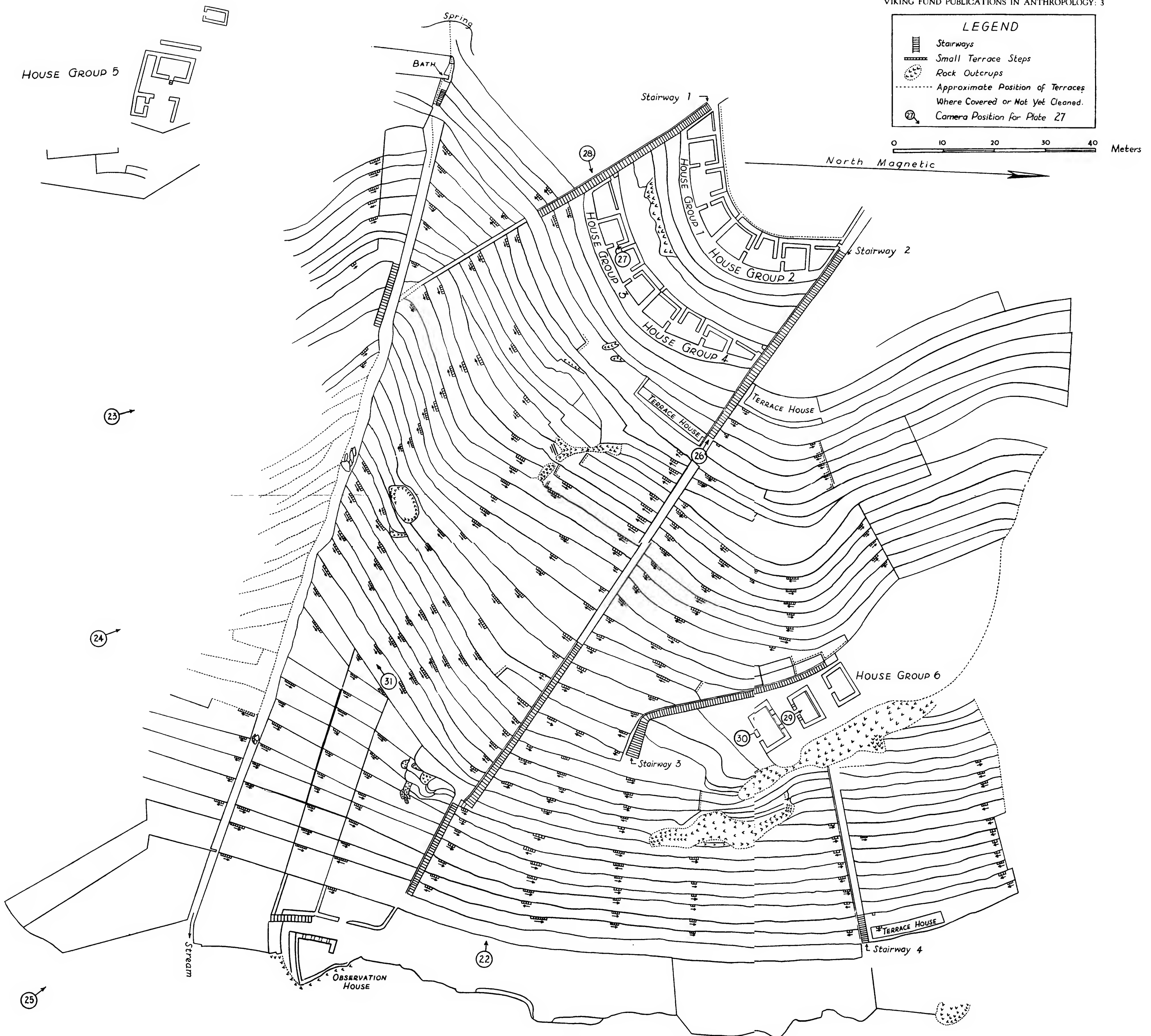


FIG. 10. PLAN OF THE INTY PATA RUINS

and western sides of the site. The facts that there are only four of them, and that at least one of these four probably served principally for passage from one part of the site to another rather than for agriculture, suggests that this was not primarily an agricultural village.

### INTY PATA

Inty Pata<sup>15</sup> or "Sunny Slope" is the closest to Machu Picchu of all the sites examined by the Wenner Gren expedition. It lies at an elevation of 2790 to 2910 meters just beneath the top of the great ridge separating the Aobamba and Urubamba valleys and near the point where the ridge turns out towards Machu Picchu (Fig. 2). The site faces towards the Urubamba valley and has a clear view of the lookout platform on Machu Picchu peak, of Phuyu Pata Marka, of the site of Choquesuysuy (which is described below, p. 41), and of a small site above the group called "Fortress" on the ridge behind Inty Pata (Fig. 2 and Pls. 21 and 27). The site is not on the road to Machu Picchu, nor have any other Inca roads leading to it been located, but there probably were such roads to all the surrounding sites.

At present, the only way to reach Inty Pata is by a trail leading up the ridge and connecting on the other side with the main trail down to San Miguel. This trail terminates in the small group of Inca houses southwest of the site (Group 5 on Figure 10), the largest of which had a modern thatched roof when the expedition first reached the site. This house had probably not been occupied for at least a year previously, as the trail leading to it was much overgrown. The house is said to have been roofed and inhabited for nearly five years by an old woman who lived there as a recluse. The small group of ruins in which it is located (Group 5 on Figure 10) is called Yunca Pata.

Our expedition seems to have been the first to visit these ruins. Bingham does not mention them and at the time of our arrival all parts of the site except House Group 5 were concealed beneath a thick covering of brush and unknown to our carriers. During the four months spent at the site, from July 25 to November 15, 1941, we traced the ruins over an area of 40,000 square meters, within which we cleared and mapped forty-eight terraces in addition to the accompanying house structures. This is by no means the full extent of the site; the terraces were so numerous that they could not all be followed in the time available.

Except for clearing the floor of the structure marked "Observation House" on Figure 10, the expedition did no excavation at Inty Pata. Through the carelessness of one of the foremen the remains of a small, stepped wall jutting inwards from the front wall at the entrance of the Observation House was partly destroyed, although the writer had had the opportunity to examine it previously.

The site of Inty Pata presents a most imposing pyramidal shape when viewed

<sup>15</sup> This name, which accurately describes the sun-bathed mountain side on which the site is located, was selected by Professor Farfán.



from a distance (Pl. 21). This is because it is located on a steep slope which juts out from the ridge in a pyramidal fashion. The entire slope is covered with terraces, which also extend indefinitely to the south (the left on Plate 21) past a small stream which is conducted through an artificial channel cut somewhat below the level of the terrace tops. The regularity of the terraces is also broken in four places by vertical stairways, which provide the means of communication between the various house groups (Fig. 10 and Pls. 21 and 23 to 26).

There are six house groups at this site, two of them in a row between the two main staircases at the very top of the pyramid of terraces, two more in a row between the same stairways six terraces down from the first two house groups, one in an isolated position to the southwest which was not cleared, and the final group to the northeast between the other two stairways (Fig. 10 and Pls. 27 to 30). In addition, an isolated house (called the "Observation House" on Figure 10) is situated at the bottom of the longest stairway at the site (number 2 on Figure 10), there are several sunken houses in the terraces, and a bath or fountain is located near the top of the stream channel. A peculiar feature of this site is the absence of roads or other horizontal means of communication except terraces between the various building structures.

The five house groups and the Observation House contain twenty-three buildings. The masonry of these buildings is composed of medium-sized stones, apparently trimmed by hammer and well put together. In at least one building, larger stones have been used to reinforce the corners (Pl. 30). Interior niches and large monolithic lintels are common.

House Groups 1 and 2 consist of a single construction, separated by a partition wall, on an unusually broad terrace at the very top of the site (Fig. 10 and Pl. 23). Each has an identical plan, except that the plan of House Group 1 proceeds inwards from left to right from Stairway 1, whereas that of House Group 2 proceeds in the opposite direction from Stairway 2. Each is entered from the stairway by a narrow passage which leads along the rear of the house group past an irregular building, perhaps a storeroom, turns outwards, and ends in the rear corner of a little courtyard on which face three buildings. Two of these, on either side of the courtyard, are rectangular houses with single doorways and interior niches; the third, at the back of the courtyard, is open in the front. A second narrow passage leads inwards at the far end of the rear building and turns towards the adjacent house group (Fig. 10). Presumably this passage was originally open so that one could go from one house group to the other without a long, outside detour through the terraces, but the passage is now blocked by a thin wall.

The individual buildings are all of one story and have no gables. The significance of the open front of the rear building in each house group is not clear. The fronts could not have been left open so that the view might be enjoyed, for the front wall of the terrace is built up to the height of the house roofs, completely enclosing the courtyard and obstructing the view. Only the thatched roofs of the

buildings must have been visible from the terraces below House Groups 1 and 2.

House Groups 3 and 4, on the sixth terrace below the first two house groups, are built on exactly the same plan as House Groups 1 and 2, although the rooms themselves are somewhat larger because of the greater distance between Stairways 1 and 2. Views of House Group 3 are given on Plates 27 and 28.

House Group 5, on the northwestern side of the site, consists of three small, rectangular houses on a series of terraces which are still largely overgrown. The chief point of interest in this group lies in its plan (Fig. 10). A large house connected with a small, roofed building probably served as the main dwelling and kitchen respectively—an arrangement still prevalent among the modern Indians where the main house serves for sleeping quarters and storage. The main house probably had a hip roof in antiquity, as all its walls are flat on top, but when the expedition first reached it the house had a modern thatched roof. The third house in this group is some distance away and is not, like the other two houses, joined by a wall. Additional clearing will be necessary to determine its relation to the first house.

The sixth house group lies on the northeastern side of the site between Stairways 3 and 4, and just west of a large granite outcrop. It consists of three rectangular houses situated in a line up the hill. These three houses are not connected by compound walls, as in the other house groups, nor is there a courtyard. Moreover, each house has two stories rather than one. Each of the two upper houses has a single doorway on the ground floor; the lowest has two. The second stories are each entered at the rear from the upper ground levels. The buildings have gables, interior niches, and a narrow set-back marking the line of the second floor over the niches (Pls. 29 and 30).

The Observation House is an irregular, one-room structure perched on a rocky outcrop at the lower edge of the site, at the base of Stairway 2. A small, level area on the top of the outcrop is backed by a roof-high wall which once contained four openings. These are now so deteriorated that it is doubtful whether they were niches or windows. Two short wings project forward at the ends of this wall to form a narrow building with an open front (Fig. 10). There is a small platform in front of the house, bounded by a low wall of rough masonry about one and one half meters high which follows the irregular border of the outcrop (Pl. 25). The entrance is on the north side and presents some unusual features. On its right side, the wall of the house ends in a step about half its height. On its left, the wall in front of the platform is continued by a line of stones which, with one small gap, runs east and joins a small wall jutting inwards to form the other side of the entrance. This short, jutting wall is not higher than the border wall and is also finished with a step half its height. The entrance between the two steps is fairly wide. This peculiar house-unit has been called the "Observation House" because it seems to have served as a lookout over the valley. The house is too narrow to have had a roof and it is so dilapidated that a restoration would be difficult.

An interesting and puzzling feature of Inty Pata, as of Phuyu Pata Marka, is the existence of buildings hollowed out of the terraces. There are three at Inty Pata, marked on the map as "terrace houses." Their presence is indicated by a door in the terrace wall leading to a rectangular room of the same width and height as the terrace. The walls of this room never project above the terrace. A possible use may have been as a storeroom.

The one bath at the site is located near the top of the artificially constructed stream channel in the southeastern part of the site (Fig. 10). It consists of a rectangular masonry enclosure, no higher than the surrounding terraces, into which the water falls from the stream, accumulating in a small basin in the floor and then flowing out through the door on the south side. The stream continues down through the terraces, always at a lower level than the tops of the terraces. Its bed is blocked in two places by large boulders, which evidently served to dam up small pools at these points. The stream, which arises in a spring just above the site, contains the only water supply found in the cleared area. It could not have been used to irrigate the terraces since it disappears into the ground about 30 meters down from the bath.

The four stairways at the site evidently served as the means of communication between the several house structures. One of them is located on either side of each of the principal house groups and they also extend to the Observation House and the terrace houses (Fig. 10). None of the staircases is near the bath, but a special stairway has been built to that structure from one of the terraces which leads to Stairway 1. All the stairways are sunk below the level of the surrounding terraces; some so low that it must have been difficult to reach the terraces from them. Each is provided with a series of stone steps (Pl. 26).

The terraces at Inty Pata are much more extensive than those at Machu Picchu. The forty-eight which were cleared and mapped follow the natural contours of the mountain slope and give an accurate outline of the detailed topography (Fig. 10). They have an average width of about two and one half meters. The overburden is everywhere light, consisting of angular boulders and disintegrated and partially decomposed granite sand. Bedrock commonly projects through the terraces and in many places has been used to form part of the terrace walls.

Each of the terraces has its own system of communication, entirely distinct from the stairways which served for travel from house to house. On the front wall of each terrace is one or more series of long stones set in the wall and projecting to form a sort of ladder in the manner common to Inca construction (Pl. 31).<sup>16</sup> This ladder consists of large, flat stones built into the wall and projecting one half to two thirds of a meter from its surface. Depending upon the height of the particular wall, there may be two to eight steps, arranged at an angle of approximately 45 degrees. Those on one terrace slope to the right, and those on the next terrace to the

<sup>16</sup> As at Pisac and Moray, sites near Cuzco.

left, forming zigzag and diamond patterns which are clearly visible from a distance because of the shadows cast by the stones (Pls. 24 and 25). At Inty Pata, the steps are much more frequent than utility would require, and must have had decorative significance. When viewed from a distance, the effect of the steps is very pleasing and relieves the monotony of the masonry walls (Pls. 23 to 25).

The large number of terraces at Inty Pata, especially in comparison with the number of house structures, suggests that this was an agricultural village. There is no evidence of plazas, religious structures, or fortifications.

### CHACHA BAMBA

The site of Chacha Bamba, which has been named for a small neighboring hacienda, is situated at the bottom of the canyon of the Urubamba on the east side of a small stream entering from the south (Fig. 1). It is the easternmost of all the sites explored by the expedition and from it the only other one of the cleared sites which is visible is Inty Pata. As many as eight more uncleared sites are discernible in the unexplored area further east, however, their presence being indicated by lines in the vegetation.

Several ancient roads lead out of the locality. One runs along the south bank of the Urubamba River on the same side as Chacha Bamba and turns up the first quebrada east of that site. Another climbs the quebrada of Chacha Bamba in the direction of Sayac Marka. On the west, a third road leads up the slope of the mountain between Chacha Bamba and Choquesuysuy, but has been partially destroyed by a landslide.

The site is not mentioned by Bingham and was known only to local natives prior to its discovery by this expedition. It was so densely covered by trees and scrub as to be invisible from the railroad, although it is only separated from the latter by the width of the river. The expedition's work at the site, which lasted from July 20 to October 30, 1941, was limited to clearing and to the excavation of the baths and terraces, the latter being done in a search for the water channels supplying the baths. In the time available, it was possible to clear only a part of the site, and its full extent is not known.

Debris brought down and deposited at the mouth of the tributary has caused the Urubamba to cut into the opposite bank at this point and to widen the canyon slightly. As a result, a gently sloping alluvial terrace about 200 meters wide extends along the southern side of the river for a short distance above and below the mouth of the tributary. The site is located nearly in the center of this terrace, which now forms one of the largest haciendas in the canyon of the Urubamba, despite its small size.

The part of the site cleared consists of a "boulder shrine," two plazas, some fourteen rooms, fourteen baths, three small stairways, several terraces, a stone-built stream channel, and a circular reservoir. The boulder shrine, situated between the north plaza and the river, was probably the most important building at the

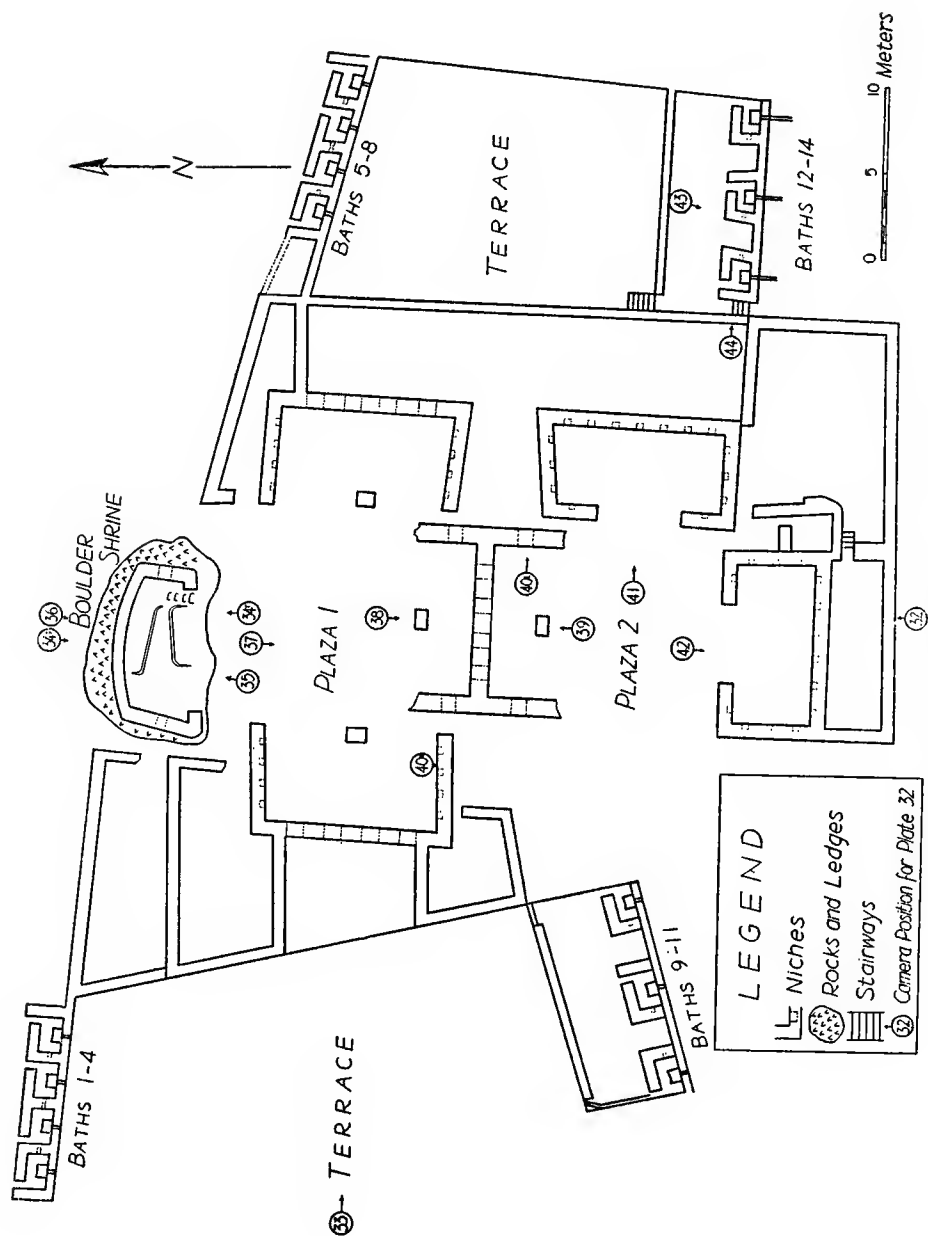


FIG. 11. PLAN OF THE CHACHA BAMBA RUINS

site, but its mass is insignificant as compared with that of the other buildings. The ruins are dominated by a large, central building, two stories high, which is divided by a partition into two rooms, one facing each plaza (Fig. 11 and Pl. 32). The rest of the site is laid out symmetrically along north-south and east-west axes which cross in this central building between the two plazas. Each plaza is also bordered by two other rooms, and there are a number of additional buildings of rough construction behind those on the plaza (Pl. 33). From these buildings, terraces extend out parallel to the river and are lined with baths, which occupy the four corners of the site. Water for the baths comes from the small tributary stream which has been trapped at a small waterfall in the quebrada above the plain, the water being conducted to the settlement in a stone-built channel. This channel seems to have ended in a circular reservoir, the foundations of which are still visible, and from which the water was probably distributed to the baths by separate channels now choked up. The small group of ruins is completely open, there being no enclosing walls or other fortifications.

The boulder in the shrine between Plaza 1 and the river is smoothed off on the top and has had two broad seats cut into it as well as a little flight of four stairs at one side of the seats (Pls. 34 and 35). The two sides of the boulder have also been carved away to permit access from the river bank to Plaza 1 between the boulder and three flanking buildings of less elaborate construction than those around the plazas. On top of the boulder is a small edifice with a foundation of two courses of carefully cut and fitted granite blocks of nearly rectangular shape (Pls. 34 to 36). The upper parts of the wall are of round field stones finished only at the corners but carefully laid up in adobe; these were probably originally covered with stucco. The two end walls are preserved to some height and each has a single window. The back facing the river has a low wall across it and perhaps also a pier in the center for the support of a cross beam. This pier is now represented only by a single, large block of stone but as the end walls were obviously finished to face an open back, there is little doubt as to its former existence. The front is completely open and faces Plaza 1.<sup>17</sup>

Opposite the boulder shrine on the other side of Plaza 1 is the large, central building two stories high. This structure is gabled and has a longitudinal partition wall which probably supported the ridge of the roof (Fig. 11). One of the rooms thus formed faces Plaza 1 (Pls. 37 and 38), while the other faces Plaza 2 (Pl. 39). Despite the height of these rooms, each probably had only a single floor, as there is no arrangement for the attachment of the beams of a second floor. The long front side of each room is open except for rectangular piers in the center of each side, which probably served to support the roof plate. The central partition wall is pierced by four large windows each having its lintel at the same height. The sills of the two central windows, however, are lower than those of the two side win-

<sup>17</sup> This building is not complete enough to determine the nature of the roof.

dows. All four sills are above the floor level of Plaza 1 but the two central sills reach the floor level of Plaza 2, which is 1.5 meters higher than Plaza 1, and therefore the two central openings appear as doors rather than windows when seen from Plaza 2 (compare Plates 38 and 39). The west side window and the two central windows are partially stoned up on the side of the wall towards Plaza 2 (Pl. 39). The end walls of this building are to a large extent destroyed, but it is evident that there was an interior niche in each room on the ground floor and a small window in the gable (Pl. 40, LEFT). Only a small piece of the edge of the eastern gable has survived, but it suggests that the pitch of the roof was steep. The masonry consists of carefully laid field stones with finished corners, adobe binders, and traces of a stucco finish.

The two buildings flanking this one on either end of Plaza 1 are only one story high (Pls. 33 and 37). Although the eastern one is too dilapidated to be certain of its shape, the two buildings seem to have been exactly the same. Both probably had steep gables lined on the exterior with stone pegs for the attachment of the roof beams (Pl. 33). Each also has an open front, broken in the center by a rectangular pillar for the support of the roof plate, four large windows in the back wall, and four interior niches on either end (Pl. 37). The western building still bears traces of plaster on one of its interior walls (Pl. 40, RIGHT).

Unlike Plaza 1, the second plaza has buildings on only three sides (Fig. 11). The northern side is bordered by the large central building, while the east and south sides are each lined with a gabled house, having one very wide entrance in the center of the side facing the plaza and small niches on all interior walls (Pls. 41 and 42). The masonry is similar to that of the other plaza, but not quite as well executed.

Around the whole group are some eight less carefully built rooms which perhaps served for storage (Pl. 43, TOP). Most of these buildings are attached to the rear of one or more of the main buildings, in such a way as to utilize the walls of the latter without obstructing the windows (Fig. 11). They are now so dilapidated that it is impossible to reconstruct their architectural details beyond noting that they are approximately rectangular in shape, variable in size, and have narrow doorways. The circular ruin believed to have been a cistern is built in this same crude manner, and there are probably other such remains south of the explored ruins on the plain of Chacha Bamba, which are not as conspicuous as the main group.

The whole group is flanked on the east and on the west by broad terraces, running parallel to the river (Pls. 32 and 43, TOP). On the east, these terraces are provided with short staircases, which are not present on the west. On both east and west, in addition, are two rows of baths, one in front of the highest terrace at the back of the site and the other in front of the lowest terrace at the front of the site (Fig. 11). The back rows contain three baths each and the front rows four baths each. These baths are not as carefully constructed as some of those in the other

sites. Each bath lies against the face of a terrace wall and its own walls are no higher than that of the terrace (Pls. 43 and 44). It is provided with a water channel running into it from the terrace above, a shallow basin at the floor level of the terrace below, an interior niche on either side, and a door in the front opening upon the lower terrace. The water supply could be traced into the rear baths from the cistern behind the site, but no connecting channels were found on the terrace between the upper and lower baths. All drained into the river. These baths could have served only for ceremonial bathing, as they are small and low and so many would not have been necessary for the sole purpose of cleanliness.

When the baths were first encountered, they were almost entirely covered with a sand of decomposed granite. This was also found on the terraces. During the clearing of this sand from the baths and terraces, a number of sherds were found, all of which are in a bad condition because of dampness. These sherds, which include plain cooking wares, Cuzco Plain and Slipped, and Cuzco Polychrome, suggest a late date for the site.

Certain architectural details at the site deserve further emphasis. These include the preserved stucco facing of at least two buildings (the central building and the west building on Plaza 1), the use of rectangular columns on the open sides of large buildings, the quantity of unusually big windows, the very high gables which give the impression of two stories, and the repeated plaza layout. Noteworthy too are the cylindrical peg stones which occur on the outside of the preserved gables and which probably served as roof binders.

The two plazas recall the so-called "sacred plaza" at Machu Picchu,<sup>18</sup> while the boulder shrine and the baths are somewhat similar to those in Plaza 1 at Phuyu Pata Marka, which also may have had a ceremonial significance.<sup>19</sup> It may be suggested that this whole site was a shrine centering around the carved granite boulder near the river. In this connection, the facts that the various features of the site have usually been constructed in units of four, and that the site is oriented towards the four points of the compass are interesting.

### CHOQUESUYSUY

Choquesuysuy is situated at the bottom of the Urubamba valley about two kilometers downstream from Chacha Bamba and at the mouth of another small tributary entering from the south (Fig. 1). It is halfway between Chacha Bamba and Machu Picchu, and from it one can see the latter site, Wiñay Wayna, Inty Pata, and Phuyu Pata Marka, all of which are high above on the mountain side. The site lies just behind a small modern Indian settlement and is across the river from the Cuzco-Machu Picchu railroad.

Sections of a number of Inca roads have been found around Choquesuysuy,

<sup>18</sup> Bingham, *Machu Picchu* (1930), 56 ff.

<sup>19</sup> See above, pp. 21, 25, 28.



although none of them has been traced directly into the site itself. One of them comes down the bottom of the river valley from Chacha Bamba, and apparently continues on past Choquesuysuy towards Machu Picchu (Fig. 1). A second climbs the quebrada behind the site in the direction of Phuyu Pata Marka. A third branches off from the first one about 500 meters west of Choquesuysuy and climbs the mountain slope in the direction of Inty Pata and Wiñay Wayna.

The name Choquesuysuy was first applied to this site by Bingham, one of whose engineers visited the site in 1915.<sup>20</sup> At that time, the ruins were so heavily covered with brush that only one building was visible. Bingham calls this building, which was probably one of the two ornamental facades at the site, a "temple" and he assigns it to the late Inca period. He himself saw the site from across the river, but never visited it.

During 1941, while our expedition was working at other sites, Dr. Axel Wenner Gren made an exploration of Choquesuysuy and first discovered the true extent of the ruins. At his suggestion, the expedition spent one month, from July 1 to August 10, 1941, in clearing the entire site of underbrush. No excavation was undertaken, despite the fact that many of the architectural features were obscured by debris, except in the roads and the water channels. In particular, a number of baths (1 to 5 on Figure 12) were cleared of the overlying dirt.






The stream which passes through Choquesuysuy rises near Phuyu Pata Marka and comes down a very steep gorge. Just above the site, it forms a beautiful waterfall, in the midst of a large outcrop of granite rock. Beneath the waterfall, the bed rock is covered by a steeply inclined mantle of coarse alluvium which has partly slid and partly been washed from the mountain slopes above. This material consists of granite boulders and a coarse, sandy clay composed of disintegrated granite. It slopes steeply down to the river and is bisected by the tributary stream.

Since the Urubamba valley is narrower at this point than at Chacha Bamba, the amount of available agricultural land is much less. Nevertheless, the site of Choquesuysuy is considerably larger than that of Chacha Bamba. It consists of two ornamental facades, six house groups (containing approximately twenty-five rooms), six baths and a fountain, one road, at least five staircases, a large number of terraces, and a lookout platform. These are arranged so as to take full advantage of the terrain, most of the house groups and other building structures being perched on granite outcrops at the top of the site, while the alluvial soil beneath is extensively terraced (Pls. 46 and 47).

The site is in two halves, separated by the quebrada (Fig. 12). The eastern half contains the largest group of terraces, unusually broad and extending over a comparatively long distance (Pls. 45 and 46). Near the quebrada, these terraces are surmounted by two house groups (numbers 1 and 2 on Figure 12), which lie on either side of a large granite outcrop and are built so closely against the rock as to

<sup>20</sup> Bingham, *Machu Picchu* (1930), 31.

**LEGEND**

-  Rocks and Ledges
-  Niches
-  Stairways
-  Terrace Steps
-  Camera Position for Plate 54

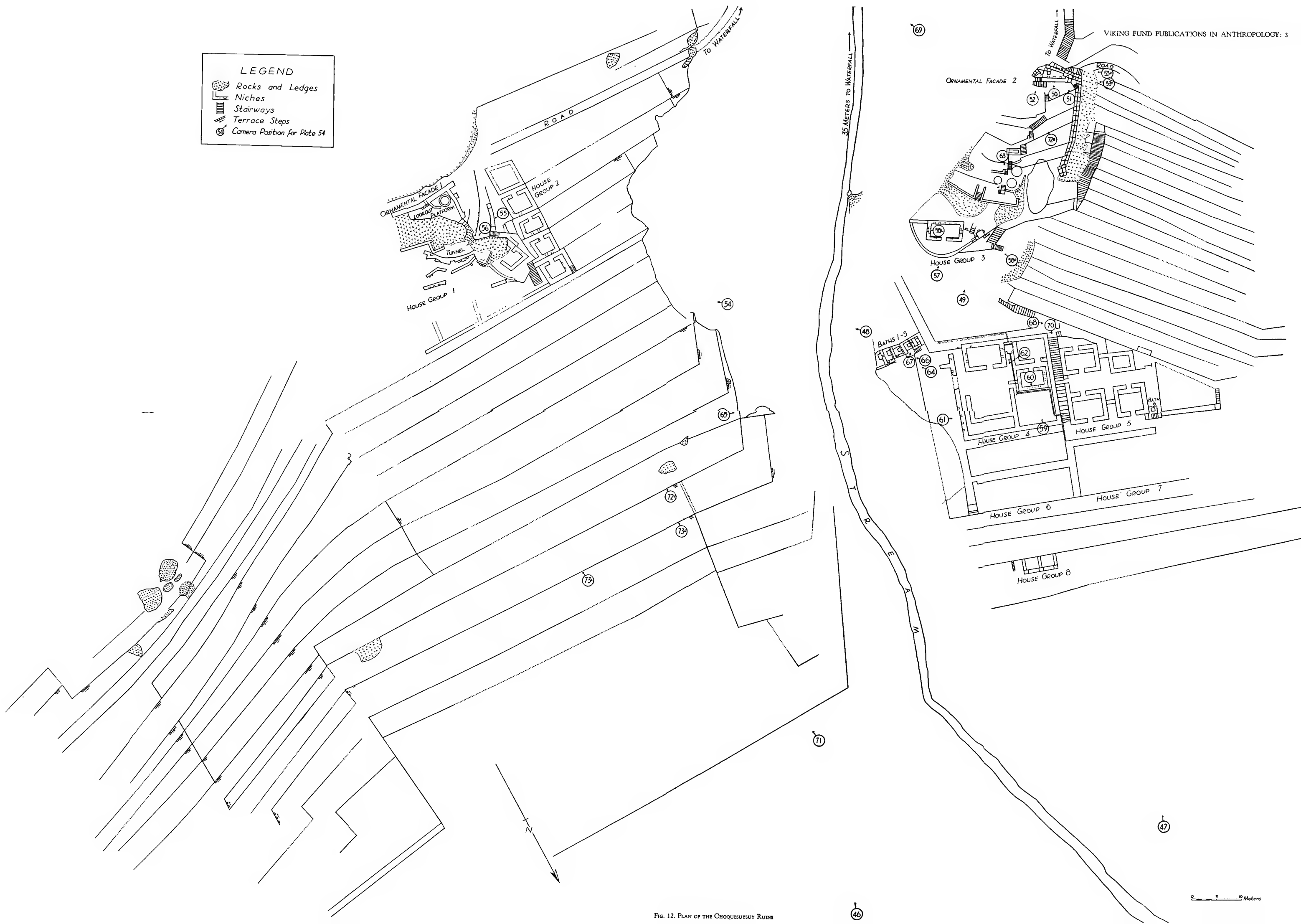


FIG. 12. PLAN OF THE CHOQUBUTSUY RUINS

be scarcely visible from below (Pl. 46). The rooms are so badly dilapidated that it is impossible to trace most of them. From House Group 2, an artificially enlarged passage through a crevice in the rock gives access to a narrow ledge on the front of the outcrop overlooking the terraces below; from this ledge one can descend to House Group 1. A series of staircases on the west side of the outcrop lead upwards between the two house groups and past the tunnel to the very top of the outcrop. Here, on a flat terrace, are a lookout platform, a curious circular pit, and a stepped wall, much of which is now missing. The wall is an isolated structure and seems to have had no utilitarian significance, for which reason it has been named an ornamental facade (number 1 on Figure 12). It is pierced by a doorway which leads from the stairs to an Inca road across the top of the site.

Following this road to the west, one comes to a series of steps cut out of solid rock, and providing the means to cross the quebrada to the western half of the site. Here the slope is steeper, the terraces are narrower, and there are not as many of them as on the eastern side of the site (Pl. 47). Two clusters of buildings are present, one on a granite outcrop corresponding to that on the eastern side of the quebrada, and the other on several terraces near the base of the site. The cluster on the outcrop is surmounted by a second ornamental facade, comparable to the one on the eastern side of the site. As in the latter, a doorway leads from a staircase through the facade to the road running behind it across the top of the site. Not all of this outcrop is devoid of soil, and much of it in the space immediately below the facade is highly terraced. Two of these terraces bear three circular pits, similar to the one beneath the eastern facade, while another has an unusual rectangular structure, consisting of masonry walls about waist high and without doorways. There is only one house on this outcrop, in a small compound at the very base (House Group 3 on Fig. 12). Nearby is an unusual alcove in a terrace which, like the house, is provided with a series of niches. A series of stairways connect the ornamental facade with this house compound and continue down (except for a section that has been destroyed by landslides) to the lower cluster of buildings at the base of the site. Another staircase passes directly through the latter cluster, separating two successive house groups on the east (numbers 4 and 6 on Figure 12) from the two on the west (numbers 5 and 7). House Group 4 is provided with a fountain and there is a row of five baths nearby, while a sixth bath is located within House Group 5. The foundations of two other houses are situated on the lowest terrace beneath House Group 6; they are marked on Figure 12 as House Group 8.

One is tempted to think of the two ornamental facades as twin gateways to the town, through which the Inca travelers passed from the road above the site, continuing down the staircases built on the faces of the outcrop to the house groups below. Certainly, these facades are much too elaborate to be mere fortifications; they may have had some ceremonial function, or have served simply as decorative screens.

The eastern facade (number 1 on Figure 12) was too dilapidated for detailed study (Pl. 48). That on the west, however, is well preserved (Pl. 49). It is a wall which rises in several setbacks, leaving narrow ledges on the face (Pl. 50). A stairway of five projecting stones, comparable to those on the faces of terraces, provides access from below to the first setback, which has four small niches in the back (Pls. 50 to 52). The second ledge is reached by a flight of stone steps and has three niches in its back wall. The latter is not straight, like the wall below, but presents three faces at different angles. The top of the wall is stepped like the gable of a Dutch house, but not so symmetrically. From the western end of the ornamental facade a double wall descends the hill to approximately the level of the circular pits, separating the terraces on the outcrop from those which extend indefinitely to the westward (Pl. 53). The two halves of this double wall are also stepped, but the steps are so staggered that the projecting edge of each one just touches the recessed edge of the other. The doorway through the facade is on the western side of the latter, between the first setback and the double wall (Pls. 51 and 52). It gives access to a narrow stairway behind the facade, which is part of the Inca road running along the top of the site (Pl. 53, BOTTOM).

House Group 1, on the far side of the eastern outcrop, is composed of an indefinite number of buildings (Pl. 54). These are very poorly preserved and are covered by material washed down from the slopes above. Only the wall lines which were traceable without excavation are shown on Figure 12.

The buildings of House Group 2, on the other side of the same outcrop, were not quite as dilapidated. Those nearest the rock were built directly against it, the face of the rock being used as their back walls. The lowest of them was found to be irregularly quadrilateral in shape and to have had an interior niche in one of the end walls. Another room further up also has interior niches, and it shows traces of a gable (Pl. 55). At its far end, a crevice in the outcrop has been artificially enlarged to give access to a ledge in the front of the outcrop overlooking the terraces below (Pl. 56). A system of terrace steps leads down from this ledge to House Group 1. The remaining houses in this vicinity are so badly demolished that their plan of construction is obscure. They are flanked by a series of staircases, beyond which is a row of five houses on successive terraces (Pl. 54). Each house has its entrance on the south or uphill side and interior niches on its end walls. The masonry is of small, roughly trimmed granite rock and is fairly well laid up.

House Group 3, at the base of the western outcrop on the other side of the quebrada, is the best constructed at the site (Pl. 57). It stands on a large terrace having a curved retaining wall which rises above the level of the terrace and serves also as an enclosure. On this terrace rises a single house, rectangular, gabled, and provided with a set-back ledge at the top of the first story to support the second floor (really an attic, since it includes only the space between the eaves). Each gable is pierced by a window and by a niche, while the first floor interior is also lined with niches (Pl. 58, LEFT). The house is liberally provided with peg stones,

on the inside above the niches and also on the outside lining the gables (Pl. 57). A ring stone is located over the doorway.

The enclosure has two entrances, one a stairway descending from the terrace above and the other a doorway on the same level as the house itself. Alongside the former is a small niche (Pl. 57); outside the latter has been constructed a large alcove which itself contains three small niches (Pl. 58, RIGHT). These niches are unusual, for at the other sites such niches occur only within the houses. It is possible that the alcove, which is wide and so deep that its floor plan is approximately square, may have once had a roof. Four stone steps lead up to this peculiar construction.

House Groups 4, 5, 6, and 7, beneath the one just described, are badly preserved and were in part covered with so much debris that it was impossible to trace their plan of construction (Pl. 47). Nevertheless, enough of them was recorded to indicate that they had been laid out in an unusually regular manner and that they approximate closely the typical Inca house plan: a rectangular enclosure with only one or two entrances, within which the houses are grouped symmetrically around a central yard in blocks of rectangular structures separated by corridors.<sup>21</sup> Neither House Group 4 nor House Group 5, the two best preserved, are symmetrical as in the typical plan—the former because of the presence of a fountain and the latter because the terraces behind it are oblique—but they are much more so than the other house groups in this area, where the amount of level space is more restricted and the house groups have been squeezed into whatever flat ground is available.

House Group 4, to the left of the stairway, consists of five rooms arranged along an enclosing wall on three sides of a courtyard (Fig. 12 and Pl. 59). There was probably originally another series of rooms along the fourth side of the yard as well, but at present only a single wall is visible. The stream has cut away a section of the bank at one end of this wall and the other end is covered with debris, making it impossible to determine whether or not other walls were formerly present. It seems likely that they were, however, for there are small niches in the surviving wall which are of the type generally confined to the interior of Inca buildings (Pl. 61).

The surviving buildings in House Group 4 are also well supplied with niches,<sup>22</sup> and with peg stones. As shown on Plate 60, the latter are located between the

<sup>21</sup> This arrangement is called a "*cancha*" in Quechua, which may be translated "house-compound." A good example of the ideal *cancha* plan is the Inca town of Ollantaytambo, which is almost as regular and symmetrical as a Spanish town.

<sup>22</sup> It should be borne in mind that the absence of marked niches in our plans may simply indicate that the wall is destroyed below the level at which niches would have been made. Given a few marked niches, however, one can often estimate the position of the rest, since Inca niches were always symmetrically arranged.

niches, rather than above them. It is difficult to see how they could have been used for attachment of the roof, as suggested by Bingham.<sup>23</sup>

The regularity in plan of House Group 4 is disturbed by the presence of an elaborate fountain in the middle of its south side (Fig. 12 and Pl. 62). The fountain is built at the end of a narrow corridor where a subterranean water channel emerges from the face of the next terrace. The water from this channel is caught in a large basin made by wedging a very large granite slab across the end of the corridor. This slab is a beautifully finished stone only about eight centimeters thick, which has remained in place because it fits exactly the space for which it was cut. It is not bordered into the side walls or held by any sort of cement.

The course of the water supply for this fountain is marked with dotted lines on the plan (Fig. 12). It seems to have come from a channel, now destroyed, which brought water from the waterfall. Below the mountain the water drained off through another subterranean channel—part of which was traced—and eventually emptied into the Urubamba. The overflow from the fountain presumably drained over the top of the granite slab, as excavation of the fountain revealed neither a floor nor a drain at the bottom.

House Group 5, on the other side of the stairway, is remarkable for having been built at three levels. It is composed of three houses (and possibly of several others which could not be traced), two of which straddle the first two levels and the other the second and third levels. Each house has two entrances, one for each level (Fig. 12). Since the difference in level, about that of an ordinary terrace, is too great to be easily climbed without stairways, it is probable that the parts of each house at different levels were entirely separate. None of these houses contains niches, nor are there any gables, but nearby is a small bath (number 6 on Figure 12), which was probably included within the house compound.

House Groups 6 and 7, just below Groups 4 and 5 and separated from the latter two groups by a narrow corridor, consist at present of great piles of debris on either side of the stairway. Each is included within a rectangular enclosure composed of broken down walls (Pl. 47). It is probable that if the debris were removed other walls would be revealed.

House Group 8, on the fourth terrace below Group 6, contains the remains of two small compartments. As shown on the plan (Fig. 12), these remains consist of three upright piers with small connecting walls. As they were not cleared, their original appearance and probable use are unknown.

No terrace houses were encountered at this site, unless the peculiar alcove described above in connection with House Group 3 be considered one. As already mentioned, however, there were four circular pits in terraces, one at the base of Ornamental Facade 1 and three on terraces beneath Ornamental Facade 2 (Fig. 12 and Pl. 63). These unique structures vary in depth from a few centimeters to a

<sup>23</sup> Bingham, *Machu Picchu* (1930), 77.

meter and one half, and their walls are lined with masonry. Their function is not known. Mr. John H. Rowe supervised the excavation of the three beneath Ornamental Facade 2 and his report is contained in Appendix B.

One other masonry structure was found on a terrace. Just above the excavated pits is the foundation of a small rectangular building about waist high, without a trace of doors or niches (Fig. 12). The function of this structure, too, is unknown.

Five of the six baths located at the site are in a descending row on the very bank of the tributary creek, southeast of House Group 4 (Fig. 12 and Pls. 64 to 67). These baths were furnished with water led from the waterfall down the same channel, now destroyed, which supplied the fountain in House Group 4. The row of baths was so arranged that each received its water from the one above and discharged it into the one below. At the bottom, presumably, the water ran into a tributary stream.

The top bath is by far the best constructed and there is even evidence of carving on the great block which forms its back face (Pls. 64 and 65). The basin at the base of each bath is relatively shallow, and the only niche is in the wall of the third bath (Pls. 67 and 66). On the north side of the baths are traces of a descending stairway which must have provided access to each bath (Pl. 64).

On the north side of the third bath down, fragments of an outflow channel were found (Pl. 64). It was roughly built of field stones and its position over the masonry of the bath indicated that it had been constructed later. This channel, it appears, and all the baths except the first one were subsequently filled in with a mixture of rocks and yellow-white sand to make at least two terraces overhanging the river bank. The retaining walls of these terraces have now been washed away but the artificial nature of the fill which formed them can be readily distinguished in the side of the narrow cut made to clear the baths. The normal wash from the slope would have been rocks and humus, a layer of which overlies the sand fill. The corner of a terrace contemporary with the baths could be seen clearly in the side of the cut (Pl. 66).

The original series of baths, the subsequent overflow channel, and the terraces with which Baths 2 to 5 were later covered may be considered evidence of the existence of three building periods in this part of the site. This evidence was first recognized by the writer and was confirmed by Mr. John H. Rowe who made a special visit to the site to examine the discovery.<sup>24</sup> The three periods need not have covered more than a very few years, as there is no indication of changes in masonry styles. The masonry of the baths is of Inca type and their layout is that usually found in the Inca sites of this region. However, the find does indicate that Choquesuysuy was occupied by the Incas for some time.

The sixth bath at the site was in House Group 5 (Fig. 12). It is of the usual

<sup>24</sup> As the season was nearly at an end, the expedition stopped work on the baths so that the evidence might remain for other explorers.

type, having a shallow basin in the floor and lacking niches, but there is no indication of the source of its water supply.

As usual, communication within the site is provided by a series of roads and stairways (Fig. 12). One road runs directly across the top of the site behind the two ornamental facades, curving upwards between them to avoid the waterfall at the center of the site (Pl. 53). A second road passes behind House Groups 4 and 5, giving access to the terraces on the western side of the site (Pl. 68). The level sections of these roads are of dirt; upon slopes, stone steps are provided. Where the upper road crosses the quebrada above the waterfall at the center of the site, the steps have had to be cut into the solid rock, which slopes steeply at this point (Pl. 69). The vertical stairways, which are in the vicinity of the house groups, are also paved with stone (Pl. 70).

Terraces were found on the alluvial soil on either side of the quebrada (Pl. 71), extending from the water's edge to a height of about 67 meters above the river. On the higher terraces, the alluvial soil becomes much thinner and bed rock is visible in many places. There are twenty-three rows of terraces east of the quebrada, ranging in width from five to eighteen meters. These are well preserved except in the center of the area, where water from the upper slopes has washed down and broken the terraces to a width of some eight meters, and in the vicinity of the stream, where erosion has also taken place. West of the quebrada, the number of terraces is twenty-four, but they are much narrower than those on the east. Again, some erosion has taken place near the stream and in addition all terraces along the bank of the Urubamba 70 meters from the stream and beyond are now covered with wash from the slope above, so that it is impossible to determine how far the western terraces extend.

The terraces on both sides of the quebrada are built of good masonry formed from hammer-broken boulders (Pl. 72, *top*). The terrace walls at this site, unlike all the rest, are vertical rather than slightly sloping. The walls of the west terrace are plain, but those east of the quebrada bear two added features: steps composed of projecting stones as at Inty Pata (see p. 36 above) and vertical grooves in the terrace walls. These grooves, which have a square cross section, are about 20 centimeters deep (Pl. 73). Since they often occur one above another, they might be presumed to be water drains were it not for the fact that they connect with no channels on the terraces and their tops are not modified to receive a stream of water.

One group of terraces, between House Group 3 and Ornamental Facade 2 in the western part of the site, have an unusual style of masonry. Their walls are composed of flat stone slabs rather than the usual round field stones (Pl. 72, *bottom*). Although there seems to be little difference in the actual texture of the stones used in these walls and those used to face the other terrace walls, close examination reveals that the visual effect is very different (compare Pl. 72, *top* and *bottom*). The contrast is nearly as great as that between a dry wall of slate and one of granite field stones.



No cave dwellings were noticed at the site but not far away from House Group 1 are large rocky outcrops which may contain the crevice burials so common in this region.<sup>25</sup> The rainy season interrupted the work at Choquesuysuy before examination of this possible burial area could be undertaken.

Choquesuysuy was one of the few places at which a lookout platform was found within the site itself. A small area at the eastern end of Ornamental Facade 1 has been built up with masonry to form such a platform commanding a long view of the valley in both directions (Fig. 12). The spot was cunningly selected, for a few yards to either side the view is obstructed by hill slopes.

Pottery is fairly abundant in the fill of House Groups 1 and 2 and a great deal was also recovered from the clearing of the roads and water channels. All sherds from the excavation of Bath 1 were submitted to Mr. John H. Rowe, who identified them as Cuzco Polychrome, Cuzco Red on White, and Cuzco Plain—all typically Inca wares. These wares also predominate in the corridors of House Groups 4 to 7. A few variant sherds, all collected within a small radius in the main east-west passage between House Groups 4 and 5 and 6 and 7, are of coarser ware and have carelessly made red and black painted designs. Some design elements and shapes are copied from Cuzco Polychrome. The sherds may represent local imitations of Inca pottery and need have no special chronological significance.

### WIÑAY WAYNA

The site of Wiñay Wayna, or "Eternal Youth," is located on the western side of the deep quebrada above Choquesuysuy at an elevation of approximately 2650 meters, only slightly below that of Inty Pata (Fig. 2). The site commands a good view of Choquesuysuy but is hidden from Inty Pata and Phuyu Pata Marka by the mountain slopes. An ancient road runs out of it towards Inty Pata.

Although traces of pot hunters were found in the lower house cluster, the site was unknown locally at the time of its discovery by the expedition, and it had not been previously reported.<sup>26</sup> It was the last one at which we worked, and we were able to spend only two weeks there, from October 15 to October 30, 1941. During this time, a map was made of the most obvious building structures at the site but it was not possible to clear them or to examine the terraces closely. Accordingly, the following is only a brief summary of the nature of the site.

Wiñay Wayna covers an area even greater than Inty Pata and like the latter it consists for the most part of terraces. Over forty terraces were counted and perhaps twice that number exist. As at Inty Pata, they follow the topography and are cut through by stairways which connect the buildings.

Most of the buildings lie on a precipitous spur north of a small stream. They include about thirty house or storage structures, fifteen baths, and a lookout plat-

<sup>25</sup> The ancient practice was to flex the corpse, to thrust it, generally in a sitting position, into a natural cavity under some overhanging rocks, and to block the entrance with boulders.

<sup>26</sup> The name Wiñay Wayna was subsequently provided by Dr. Julio C. Tello.

form. The houses are divided into an upper and a lower cluster by terraces and they are connected by a long stairway alongside which is a row of ten baths (Fig. 13). Below the lower house cluster, at the very end of the spur, is the lookout platform.

The upper cluster of houses stands upon a magnificent terrace constructed

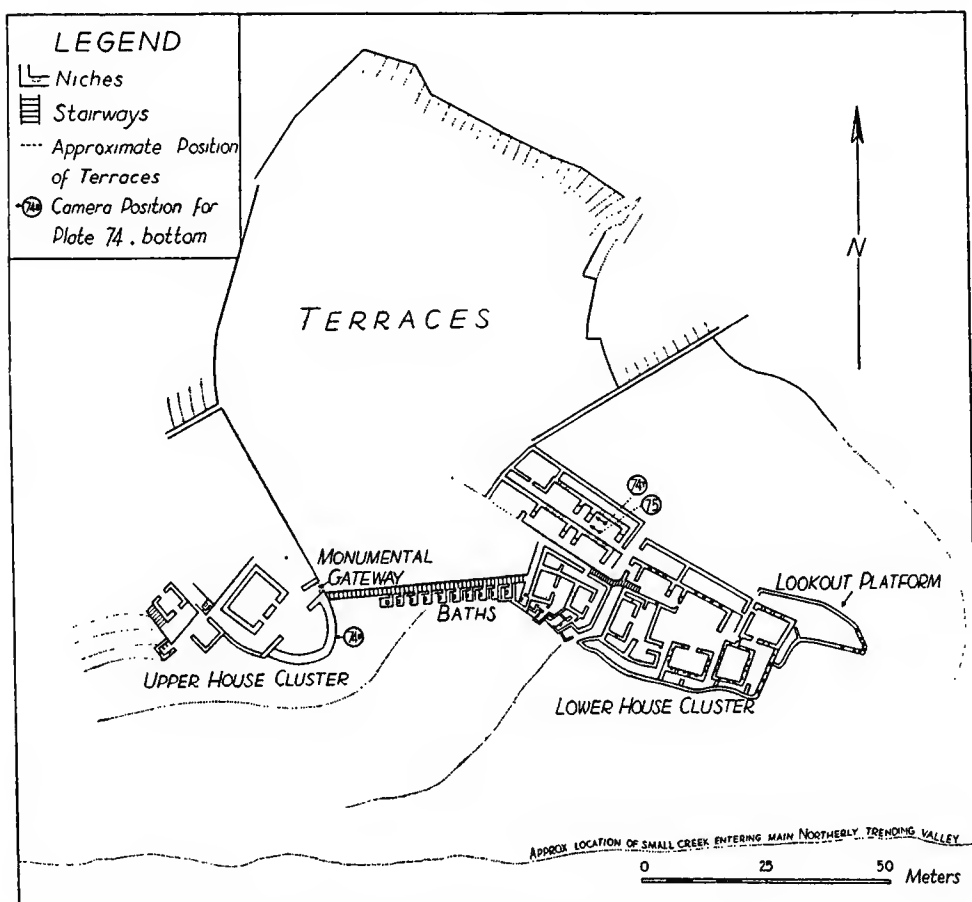


FIG. 13. PLAN OF THE RUINS OF WIÑAY WAYNA

out of the largest polygonal stone blocks to be found in the whole area. These blocks are beautifully cut and fitted to form a wall which compares favorably with the best masonry at Cuzco (Pl. 74, BOTTOM). The entrance to the cluster is through a monumental gateway provided with a double jamb, and up a short flight of steps to a small courtyard. Two buildings open on this courtyard. The northwest or uphill one is rectangular, of unusual size, and has two entrances. It also contains interior niches, exterior pegs, and originally it had two stories. Its width is so

great that it must have been rather difficult to roof. Facing this large building is an irregularly shaped structure with a semicircular back and a front that is open except for two inwardly projecting walls on either side. The rear wall contains a series of interior niches. On the west side of the cluster are two smaller buildings and two baths which are reached by a passage around the side of the rectangular house. One of the baths lacks the customary water channel.

The lower house cluster is extremely complex and presents some interesting features which can only be studied in detail when the covering brush is cleared away. As shown on the plan (Fig. 13), this cluster is long and narrow and the buildings on the north side are laid out rather differently from those on the south. The latter are for the most part rectangular, gabled houses with single entrances facing southeast (Pl. 75). These buildings are almost perfectly preserved, lacking only the thatch in several cases, and are unusually large, both in area and in height. At least two of them are so high that they apparently had small attics above the second story, as indicated by the two beam-holes near the peak of each gable. The houses all have interior niches and some are provided with ring stones, projecting pegs, and recessed pegs (Pl. 74, top). There are three baths along the south side of the upper two houses; these may be an extension of the row of baths along the staircase between the upper and the lower house structures (Fig. 13).

The buildings along the north side of the lower house cluster are constructed on terraces and the upward continuation of the retaining wall of each terrace serves as the outer wall of a building. These outer walls are pierced by windows, overlooking the canyon. The sides of the room are formed by gabled walls jutting back from the outer wall and leaving a passage along the back of each terrace. There is no wall between this passage and the rooms themselves. It is not clear whether the thatched roofs covered both the rooms and the passages or not.

The northern and southern sides of the lower house cluster meet at their lower end in a small plaza (Fig. 13). This plaza is bordered on the north and the west by buildings with open fronts; on the south side is a rectangular building with a single entrance; and on the east is a tortuous passage leading to the lookout platform. The latter is on a long enclosed terrace running out to the tip of the spur upon which the site is located. It ends in a little triangular perch cut out of a solid ledge which drops vertically to the brush below. From this perch, one may enjoy a magnificent view. Below the cliff is a carved boulder and perhaps other structures not yet discovered.

Some pottery was found on the surface of the site and in pits dug in the lower house cluster by modern pot hunters. The sherds were from large vessels of Cuzco Plain ware.

### SOME SMALLER SITES

Four smaller sites deserve brief mention. One, which is marked "Fortress" on the base map (Fig. 2), is situated just below the sharp crest south of Machu

Picchu mountain and on the side towards San Miguel. It lies northwest of Inty Pata and can be reached easily from the Inca road which crosses the ridge above that site on its way to Machu Picchu. The "Fortress" consists of two well-built, rectangular houses on consecutive terraces overlooking the canyon of the Urubamba (Pl. 76). It was probably not actually a fortress, but what other purpose it may have served cannot be surmised. There is a small dilapidated ruin above it on top of the ridge.

On the Inca road between Phuyu Pata Marka and Sayac Marka is an isolated structure, marked "House" on the base map (Fig. 2). This building is rectangular,

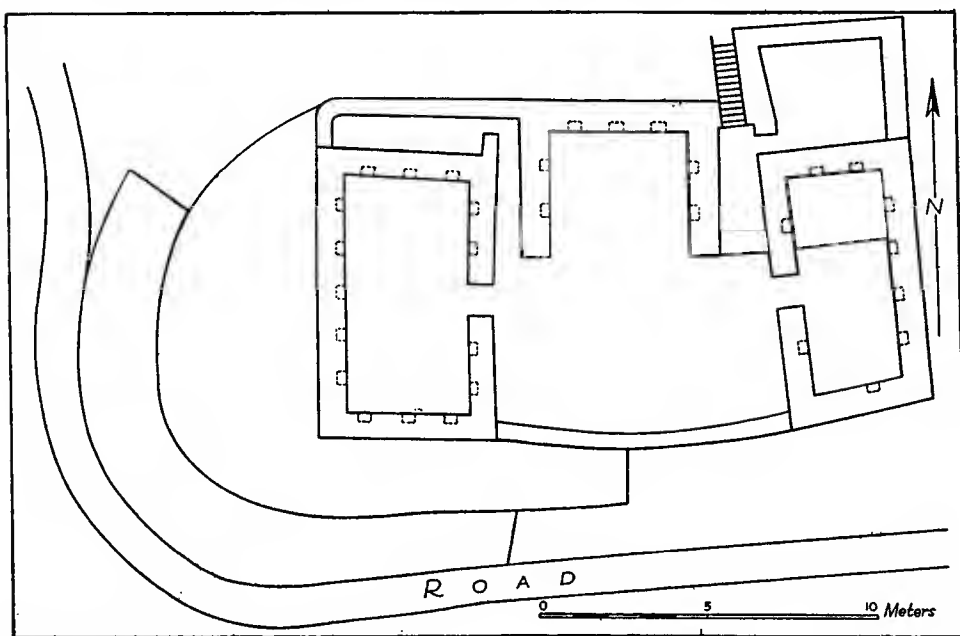


FIG. 14. PLAN OF THE SMALL RUINS 200 METERS NORTH OF SAYAC MARKA

gabled, and provided with a series of niches in the usual Inca manner; in addition, it is partially excavated in a hillside so as to be semisubterranean (Pl. 77). The road passes directly by the front of the house on a series of steps, and the house itself has been at some time provided with a modern thatched roof.

As one approaches Sayac Marka on the Inca road from Phuyu Pata Marka, the road rounds a small promontory facing that upon which Sayac Marka lies. The promontory is terraced and on the second terrace above the road are to be seen the ruins of three rectangular houses in an enclosed courtyard (Fig. 14). This site is marked "Ruins" on the base map (Fig. 2).

Beyond Sayac Marka, the Inca road was traced to a circular building with a single entrance, which probably is the site referred to by Bingham as Runcu

Raccay.<sup>27</sup> This structure is located about 1700 meters east of Sayac Marka and on the opposite side of the ridge at an elevation of 3755 meters. The ruin lies in a grass covered valley about 200 meters below the summit of the ridge, and on the south side of a small stream flowing in a southeasterly direction to join a larger northerly flowing tributary of the Urubamba about 500 meters beyond the ruin. The valley here is wide and U-shaped, with many waterfalls, and exhibits other features typical of glaciation. The ruin is circular in shape, as described by Bingham, but it has five rooms surrounding the central courtyard instead of the four mentioned by Bingham, and hence our identification of the site as Runcu Raccay may be incorrect (Fig. 15 and Pl. 78). The structure has the interior niches mentioned by Bingham, but no "bar holds" (pegs inset in the wall) alongside the entrance passage.

### ISOLATED TERRACES

Although the largest groups of terraces occur around the different house sites, small groups of them also exist alone, along the sides of the valley between Machu Picchu mountain and the ridge to the south, where there are no houses or other building structures (Fig. 2). As in the terraces at the sites, these isolated terraces were probably constructed for agricultural purposes, since they occur only in places where, because of the slope and the thin veneer of the rocky over-burden, agriculture would be difficult if not impossible without them.

The isolated terraces are similar in size to those at the sites. On steep slopes they are narrow and high; such a terrace ordinarily lies 3 to 3.5 meters above the terrace below it and is only 1 to 1.5 meters wide or even narrower where the terraces pass around steep, rocky promontories. On more gradual slopes, the terraces are much lower and broader, in places reaching a width of 8 to 10 meters. On an average slope of 30 to 35 degrees, individual terraces are usually 1.25 to 2 meters in height and 1.75 to 3.5 meters in width.

As at the sites, the isolated terraces are each built of coarse rocks at the bottom and smaller ones towards the top, the latter being overlain with a varying thickness of clay and humus. This material is held in place by an outer wall constructed of stone and usually sloping back towards the terrace at an angle of 15 to 20 degrees from the vertical. The stones used for the wall are generally field stones of white granite, trimmed only at the corners. Along the tops of the walls, rather flat slabs of uniform size have been used to give a finished appearance. Where convenient, projections of bedrock have been incorporated to form parts of the walls.

There are no passageways running up and down the isolated terraces as at the sites. Communication from terrace to terrace is provided only by steps running up the face of each terrace wall. As at the sites, these steps consist of large, flat stones built into the wall and projecting one half to two thirds of a meter from its surface. Depending upon the height of the particular wall, it may have two to eight

<sup>27</sup> Bingham, *Further Explorations* (1916), 447; *Machu Picchu* (1930), 26.

steps arranged at an angle of 45 degrees. These often slope to the right on one terrace and to the left on the next, forming a zigzag pattern.

### LOOKOUT PLATFORMS

The lookout platforms described above in connection with the sites are not the only ones in this vicinity. An isolated lookout platform was discovered along the trail between Inty Pata and Wiñay Wayna, and there is another on the Inca road between Phuyu Pata Marka and Sayac Marka (Fig. 2). These correspond to the two platforms discovered by Bingham<sup>28</sup> on the peaks of Machu Picchu and Huayna Picchu, overlooking the site of Machu Picchu and the canyon of the Urubamba.

The construction of the isolated lookout platforms is the same as that of the platforms at the sites. Each is composed of a small terrace walled with masonry and located at the best possible spot for observing the surrounding terrain. No house ruins are present.

### INCA ROADS

The complex network of ancient roads in the area explored is only slightly less impressive than the ruins of the cities. These roads run for long distances with moderate gradients and in places where the gradients are necessarily steep, steps or, less commonly, "zigzags" with steps, are constructed.

These roads vary from one to two and one half meters in width and are paved throughout their entire length with flat granite blocks about one third of a meter in diameter. Where irregularities in the bedrock caused it to project above road level, it was cut down to form part of the road surface. In the steeper parts of the roads, the steps are in part constructed of stone blocks and in part cut directly into bedrock. Thus it is not uncommon for one to climb three, four, or more steps cut in solid rock, then steps constructed of stone blocks, and again more steps cut into solid rock. When the original bedrock surface made it suitable for only a portion of the width of the roads or staircases, this portion was utilized and the road was brought to its normal width by stone blocks placed on one or both sides of it.

In most instances, the roads along the sides of the mountain are not cut into its side but are built up on the outer or lower side with a well-constructed stone wall holding the other rocks in place (Pl. 79). Where the gradient is steep, this outer wall reaches a height of eight meters or more, and such remarkable use is made of the small crevices in the bedrock to hold the rocks in place that these roads remain almost perfectly preserved along steep cliffs. Where the roads cross swamps or other relatively flat ground, they are built up from about two thirds of a meter to two meters above the level of the ground with a wall on each side.

The rocks from which these roads were built were not taken from any one quarry and do not appear to have been carried long distances. They seem rather to

<sup>28</sup> Bingham, *Machu Picchu* (1930), 41.

have been picked up from talus slopes and, possibly less frequently, from broken bedrock in the immediate vicinity of the construction project. Practically all the stones used in the construction of the roads are of white granite identical with the

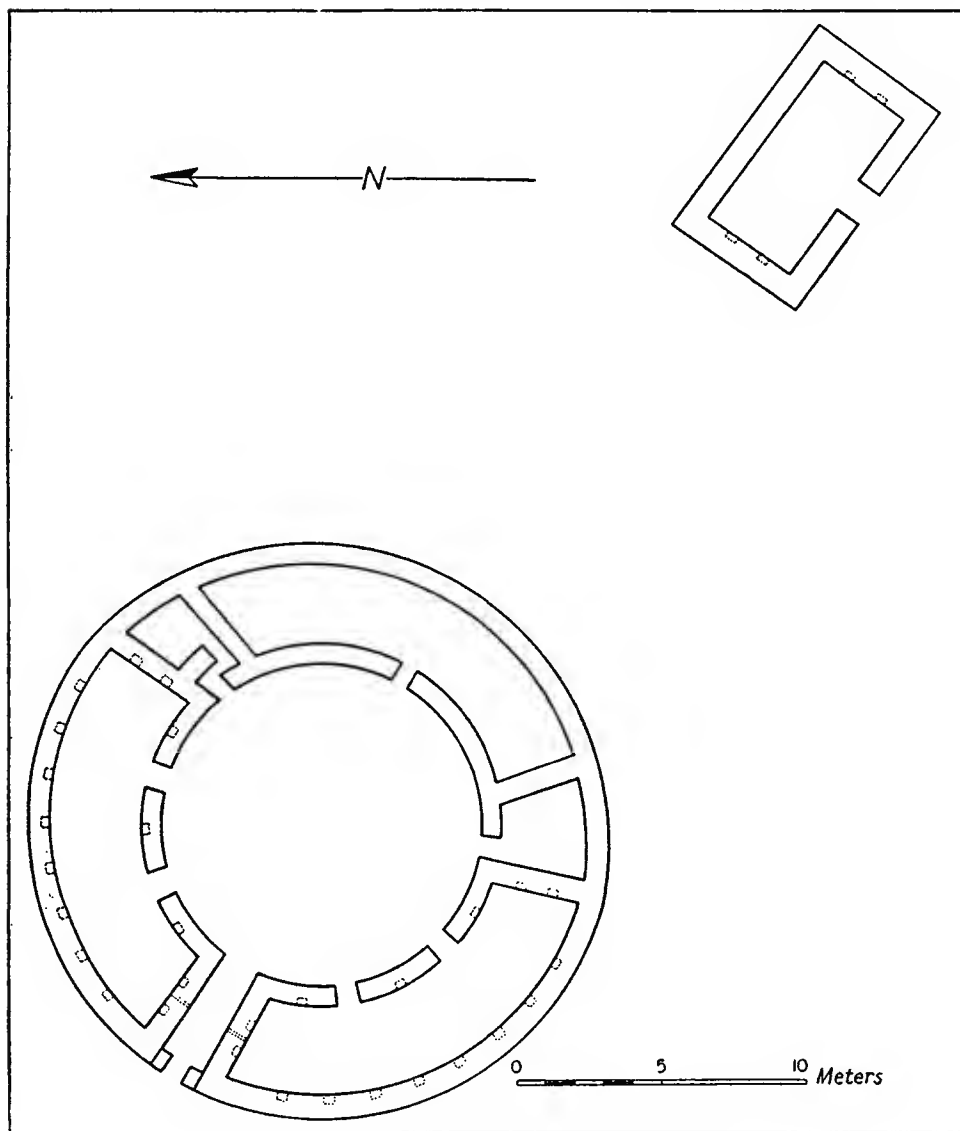


FIG. 15. PLAN OF THE RUIN OF RUNCU RACCAY

granite underlying the entire region. However, in a few places this white granite is traversed by rather narrow dykes, darker in color and more basic in composition than the normal white granite. Where these dykes occur, blocks taken from them

are almost always included in the paving material of the road. This produces conclusive evidence that the stones used in the roads were derived from the immediate locality and not transported farther than necessary.<sup>29</sup>

The road which has been followed for the greatest distance runs along the side of Machu Picchu mountain and crosses the narrow ridge above Inty Pata (Fig. 2). From there it continues south along the eastern side of the ridge to Phuyu Pata Marka and then crosses the ridge and follows the western side to Sayac Marka and Runcu Raccay. For the most part this road has a very moderate gradient but wherever the grade is necessarily steep for a short distance, stone steps are utilized. About 800 meters north of Sayac Marka a branch road leads into the valley at an easy gradient. Two other roads are visible on the west side of Sayac Marka leading to the other side of the valley.

The mule trail from Choquesuysuy to Phuyu Pata Marka, constructed by the expedition, crosses two other roads running along the side of the mountain (Fig. 2). One of these roads is at an elevation of 2225 meters, and the other is at an elevation of 2500 meters. Segments of other roads have been located on Machu Picchu mountain and on the sides of the ridge to the south. These are horizontal or, at most, have very moderate gradients. Tracing these lower roads is slow and difficult work because in some places they are buried beneath landslides and in other places they disappeared among cliffs which seemed to be impassable. However, it is hoped that with further work these isolated sections will be connected and that it will be possible to reconstruct the greater part of this old road system, on the map at least.

The most interesting feature of the Inca roads so far explored in this region is a tunnel about twenty meters long, approximately halfway between Phuyu Pata Marka and Sayac Marka (Fig. 2 and Pl. 80). The tunnel has been cut through solid granite and runs north 80 degrees west. It is divided into an eastern and western section by an opening in the outside wall about two thirds of a meter in diameter. The eastern half slopes upwards (to the west) at an angle of eight and one half degrees. This part of the tunnel may be largely of natural origin, as the tremendous ledge of granite which forms the outer wall has slipped part way down the cliff along a joint plane, and moved out at the bottom. The walls of this part of the tunnel are formed by the smooth, joint planes, the inner wall dipping 75.5 degrees south and the outer wall 55 degrees south. At the east entrance of the tunnel the floor is about two meters wide. The western part of this eastern half of the

<sup>29</sup> This is also true of the sites. The bed rock underlying the upper part of the Choquesuysuy ruins is finer grained and darker in color than the normal, white granite and the buildings in this part of the city contain many of these rocks. Furthermore, although the granite is remarkably uniform over the entire area, small differences both in the quantity and quality of the dark minerals exist, and these slight differences are clearly reflected in the general aspect of the different ruins. For example, at Phuyu Pata Marka where the granite contains practically no dark minerals, the buildings are much whiter and cleaner in appearance than at any of the other ruins.



tunnel has apparently been enlarged by artificial means, since drill holes were observed along the roof and walls of this section.

In the western half of the tunnel, the slope increases to 37.5 degrees. Eight monolithic steps have been carved in the granite floor, and two steps constructed from granite blocks. A seat has been cut from a large piece of granite between the steps and the north wall. Although some movement has taken place along joint planes in the rock, this part of the tunnel appears to be largely of artificial origin. In addition to the steps carved in the bottom of the tunnel, drill holes occur along both sides and top. The freshly fractured surfaces testify to the amount of rock removed.

The monolithic steps within the tunnel indicate that the tunnel itself formed part of the ancient highway connecting Phuyu Pata Marka and Sayac Marka. The question arises, however, whether the drill holes were possibly made during the Conquistador period or even as late as modern times. As research work by Bingham failed to reveal any record of early Spanish penetration into this region, it seems unlikely that the work could have been carried out by the Spaniards.

Since Bingham observed a tunnel in the same area, it is of special interest to note his report. "In one place," he writes, "we were surprised to find evidences of modern blasting. Our guide said that some years ago a planter of potatoes in the upland region had attempted to utilize this ancient highway in order to get his products to market. The only place he met serious difficulty was at the point where the roadway ran through a tunnel behind a huge, sloping ledge. The Incas had found it easier to tunnel behind the ledge than to cut the roadway in the face of the sheer cliffs, but the tunnel was not wide enough for loaded mules."<sup>30</sup>

Tales of native guides are not always trustworthy. For instance, we received the "information" that the road was used by cattle rustlers who had reconstructed it, but none of the peons, some of whom were fifty or sixty years old and had lived all their lives in the region, could tell us of any drilling or blasting in modern times. Furthermore, we have found no evidence of any nearby hacienda that could have used the road for potato transport.

Besides, it seems unlikely that a potato grower, who was probably very poor if he was attempting to make a living in this remote region, would purchase blasting power, drills, and sledge hammer and transport them up the mountain for the purpose of widening a tunnel, when he could have constructed a trail above or below the cliff through which the tunnel passes, with considerably less effort and expense.

On the other hand, there is some evidence suggesting that the holes may have been drilled by the stone workers who built the highway of which the tunnel is an integral part. In the first place, the sides and bottoms of the holes are polished and are very similar in appearance to the inside surfaces of the many uncompleted

<sup>30</sup> Bingham, *Machu Picchu* (1930), 27.

ring stones in the buildings at Sayac Marka. This suggests that they were drilled in the same manner, probably by some type of rotary drilling rather than by hammer and drill steel. Secondly, although most of the holes have about the same diameter as holes now drilled by percussion methods for blasting, one of the holes is about twice the normal size. Thirdly, about 28 kilometers by air line from the tunnel many similar holes were observed along the ancient road leading from the "Fortress" to the Urubamba valley where the road is cut into the side of the cliff. Furthermore, the ancient origin of the holes is indicated by the fact that they are associated with faces of rock in the tunnel which were afterwards smoothed. Drill holes also occur at other sites where there is no possibility of blasting.

The holes were not necessarily made for explosives since they could have served equally well for wedges. The writer and Dr. G. K. Lowther, the geologist of the expedition, examined several holes for evidence of chipping from wedges but could find none. This merely makes it very likely that the wedges were not of metal. Wooden wedges, however, could have been used and caused to expand, simply by soaking them in water sufficiently, so as to split the granite in which the tunnel was cut.

The most striking feature of the road system is that all the roads are more or less horizontal, each following faithfully the contour of the mountain with only moderate gradients throughout the greater part of its length. Despite the fact that each road is at a different elevation on the mountain side, none of them is connected one with another and the valley below by cross roads running up and down the mountains.

## SUMMARY

THIS paper constitutes a report on the archeological research undertaken by the Wenner Gren Scientific Expedition to Hispanic America in 1940-42. During that period, an area of about 36 square kilometers in the Cordillera Vilcabamba, between the Urubamba River and its tributary, the Aobamba, and immediately upstream from the well-known site of Machu Picchu, was mapped in detail and many additional Inca ruins were located in the area. Five of the largest of these ruins, Phuyu Pata Marka, Sayac Marka, Inty Pata, Chacha Bamba, and Choquesuysuy, were cleared, mapped, and photographed, while preliminary explorations were undertaken at the site of a sixth city, Wiñay Wayna. Four smaller ruins, probably including the site known as Runcu Raccay, were also examined, and some information was obtained about the system of roads, terraces, and lookout platforms between the sites. No excavations were undertaken, however, for none of the members of the expedition was qualified either by training or by experience to conduct such work.

Our research indicates that the Inca population of the Cordillera Vilcabamba was among the most extensive in Peru. At least two of the sites, Inty Pata and Wiñay Wayna, cover a greater area than Machu Picchu, hitherto considered one of the largest of Inca ruins, although the number of their rooms is apparently not as great. All six of the larger sites may be considered cities. It is difficult to imagine how all of them could have been inhabited simultaneously in such a rugged and forbidding terrain.

Two of the sites, Phuyu Pata Marka and Chacha Bamba, contain large, flat areas called plazas, with or without pavings of disintegrated granite. These are accompanied by boulder shrines, baths, and other structures which may have had ceremonial significance. At Choquesuysuy are two unique ornamental facades, associated with a number of circular pits whose function is unknown. Wiñay Wayna has a monumental gateway of stone.

Except for these structures, the rooms in the sites were probably utilitarian, some of them being used as dwellings and some for storage. Most are arranged in compounds surrounded by stone walls which, because of the irregular nature of the terrain, are not symmetrically rectangular as at many of the sites in the leveler country around Cuzco. The buildings are of one, or rarely two, stories; a few have curved walls but most of them are more or less rectangular. Unless open at the front (in which case some rooms are provided with a pillar to support the roof), each room has one or two doors, often topped by monolithic lintels. Windows, niches, and gables are common, and there are the usual minor features cut out of stone, including ring stones, peg stones (projecting or inserted in the wall), and pierced corner stones. The masonry is usually crude, but occasionally the stones

are finely cut. At least one site (Chacha Bamba) has the stones laid up in adobe and plastered.

A prominent feature at most sites is the water system. Streams were conducted through masonry-lined channels, and drainage from the rooms and terraces was often facilitated by stone gutters, provided at the site of Sayac Marka with spouts. Each site has one or more baths, a rectangular structure containing an intake, a basin, and a drain. In addition, Chacha Bamba has a circular reservoir and Choquesuysuy a fountain constructed of stone.

The communications system is also well developed within each site. Horizontal roads and vertical stairways, most of them paved with stone, or occasionally cut out of solid rock, extend between the different house groups and also provide access to the terraces. At Sayac Marka handholds, consisting of ridges grooved on the lower side, have been observed along some of the stairways, while Phuyu Pata Marka has a stone bridge across a water channel and a bench of stone alongside one of the roads.

Terraces are necessary to the cultivation of the steep mountain slopes in this region. Most of them occur in the sites although a few groups are isolated. Each has a retaining wall of masonry, often provided with inclined rows of peg steps. At some sites, rooms are sunk into the terraces flush with the walls, perhaps for storage purposes. At Choyquesuysuy, some of the terrace walls bear vertical grooves, the function of which is unknown. Several cave dwellings have been located but not burials, either in caves or elsewhere. Finally, there are a number of lookout platforms, some in the sites and others isolated.

Since the architectural features vary considerably from site to site, some differences in function are indicated. Thus, religious activities may have been concentrated at Phuyu Pata Marka and Chacha Bamba, which are the only ruins to contain boulder shrines, plazas bordered with baths, and other possibly ceremonial structures. It may also be significant that Sayac Marka and Chacha Bamba have relatively few terraces in comparison with the rest of the sites, while Choquesuysuy has the only ornamental facades. Inty Pata and Wiñay Wayna, which contain the most extensive terrace systems, may have emphasized agriculture.

Because of his lack of archeological knowledge, the writer has attempted simply to describe the sites cleared by the Wenner Gren expedition, keeping interpretation at minimum. He may perhaps be pardoned, however, for venturing to correct a misconception that has arisen concerning the ruins in the Cordillera Vilcabamba. None of the sites in this area, including Machu Picchu, seems to have been seriously built with a view to defense. Machu Picchu and Sayac Marka, to be sure, are protected by the nature of their location, but there are no man-made defense walls or gates. No one who has seen Sacsahuaman or Huata would be impressed for a moment by the open terraces of Machu Picchu and of the sites described in this report. It was apparently not the custom of the Incas in this area to fortify towns.

## APPENDIX A

### MEMORANDUM BY JOHN H. ROWE ON EXCAVATIONS AT THE SITE OF SAYAC MARKA

TAKING advantage of the few hours afforded by a visit to the ruins of Sayac Marka on September 24, 1941, I partially cleared a small room (A) on the north side of the little plaza which lies just east of the great carved boulder (Fig. 16). The room seemed to deserve attention because of its tortuous entrance passage and the fact that the four small niches which were built into its interior wall had their floors hollowed out, so that they re-

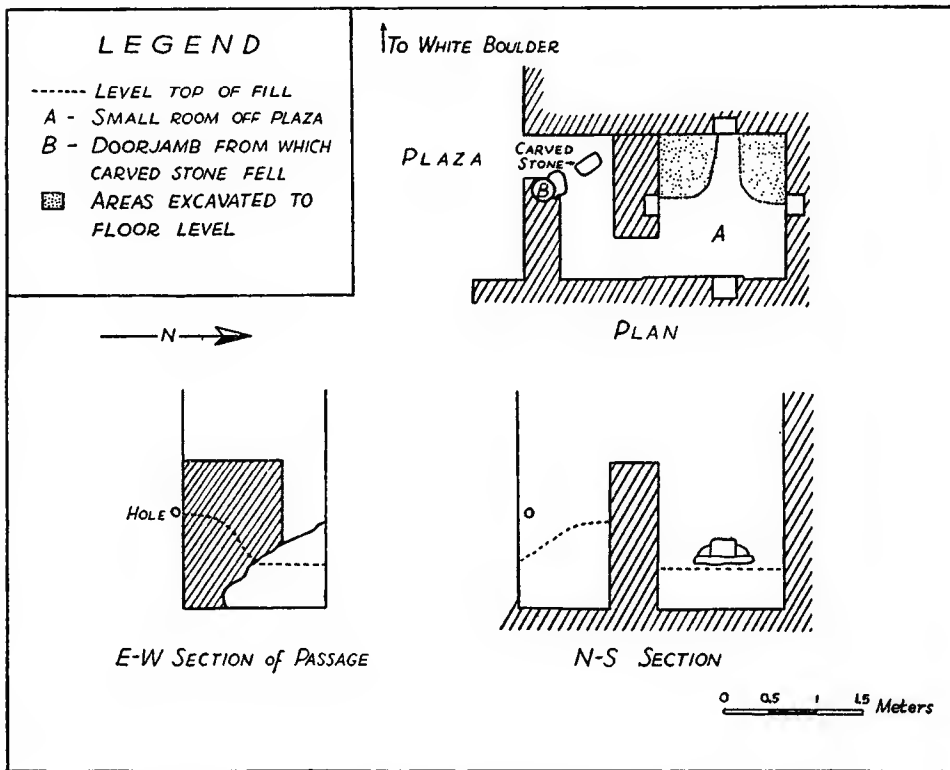


FIG. 16. MAP OF THE EXCAVATIONS BY JOHN H. ROWE AT SAYAC MARKA

sembled the handholds found on stairs at this site and at Pisac, rather more than ordinary niches.

In clearing the entrance passage, a number of fallen stones were removed and laid out in the plaza, where the loose dirt was also piled. These stones had fallen from the gable wall of the house to the south of Room A, and from the south crosswall shielding the entrance

to the room. Among the stones was the doorjamb stone with pierced corner, matching one in place in the corner of the house which forms the other side of the outer doorway. It measures about 40 by 23 by 25 centimeters, and is unusually thoroughly carved. Every corner had had a hole started through it from both directions, so that the sides and ends each have two shallow pits in them. The piercing was only complete in one corner, however. The stone was too wet to photograph, and was cleaned and left in the plaza to dry.

The passage was filled with 50 centimeters to 1 meter of humus, stumps, and stones, with yellow and brown clay making up the lowest 10 centimeters. The ancient floor was of small pieces of disintegrated granite laid in yellow clay.

A little less than half the floor area of the room itself was cleared, consisting of two pits in the west corners. There was no pottery or other artifacts in the room, and a floor, similar to that of the passage, was reached at 50 centimeters, at the same level as in the passage. The few loose stones that were found in this room were left there, but the dirt was thrown over the north wall. The cut stone which had formed the base of the west niche had fallen out, but it was found just below the niche, and obviously fitted, so it was carefully replaced. The base stones are still missing from the east and south niches, and may be buried under the remaining humus as the west one was. Except for its curious niches, the little room has no peculiar features, or anything to suggest its probable use in ancient times. It is nearly square.

I made a plan and two elevations of the area excavated (Fig. 16). The expedition's photographer, Mr. Feld, took photographs of the fallen stones in place before they were taken out; bad weather prevented the taking of photographs of the work completed.

JOHN H. ROWE

Choquesuysuy, September 29, 1941.

## APPENDIX B

### REPORT BY JOHN H. ROWE ON EXCAVATIONS AT CHOQUESUYSUY

THE lower terraces of the top group on the north side of the quebrada support at least three curious, circular masonry-lined pits. I was much interested in these pits, and spent two days clearing them. Their layout will be clear from the plan and profiles (Figs. 17 and 18). A and B, the two lower ones, are nearly circular and about 2 meters across. C, on the terrace above, is more irregular, and measures about 1.65 by 1.45 meters. The walls are of rough stones, laid in yellow earth, about 20 centimeters thick.

All three pits were cleared down to bedrock, but nothing was found except a handful of plain potsherds in each. One reworked sherd with an incompleated hole through the center, possibly a spindle whorl, was found at the point marked X in Pit A (Fig. 17).

The wall of Pit A is complete, except at the north side, where it is not traceable in a jumble of stones. There was only 15 to 30 centimeters of fill in this pit, and then solid ledge over two thirds of the bottom. The rest was filled up with small stones to about the height of the ledge. The resulting floor is so rough that it probably was originally covered with a layer of dirt to even it up.

Pit B is the deepest, and has the best preserved wall, complete except for a piece one meter long on the northeast. Here I cut a drainage channel so that too much water would not accumulate in the pit: none of the structure was destroyed in the process. This pit is nearly 1.5 meters deep, and had about 85 centimeters of fill in it. About a third of the bottom is made up of ledge, a quarter of yellow earth, and the rest of black earth.

The yellow earth originally covered the ledge about 10 centimeters deep. The level at which work was stopped was entirely arbitrary: slightly below the top of the ledge. Below this, there is still 10 centimeters of black earth in the northeastern part of the pit, overlying brown earth and pebbles. It is not at all clear where the original floor of the pit was: probably it was either at the bottom of the humus, where the yellow earth begins, or at the bedrock-brown earth level. In either case, it must have slanted from the southwest to the northeast, or down the hill.

Pit C is in good condition except on the northeast, where the wall is very rough and on a different curve, perhaps indicating that it has been rebuilt at some date since the original construction. This pit also had bedrock at the bottom, under about 40 centimeters of humus fill. A little dirt was left in around the edges of the bedrock on the north and east sides.

I cleared two areas outside the pits: one on the south side of Pit A, between it and the terrace wall above. Here I hit bedrock under about 20 centimeters of humus. The other was at the head of the lower staircase, north of Pit B. I was trying to find out how the stairs continued up between the pits. If stairs or a paving were ever present, no trace of them is left. I found yellow earth and rough bedrock.

The use of these circular pits remains in doubt. They were apparently not graves,

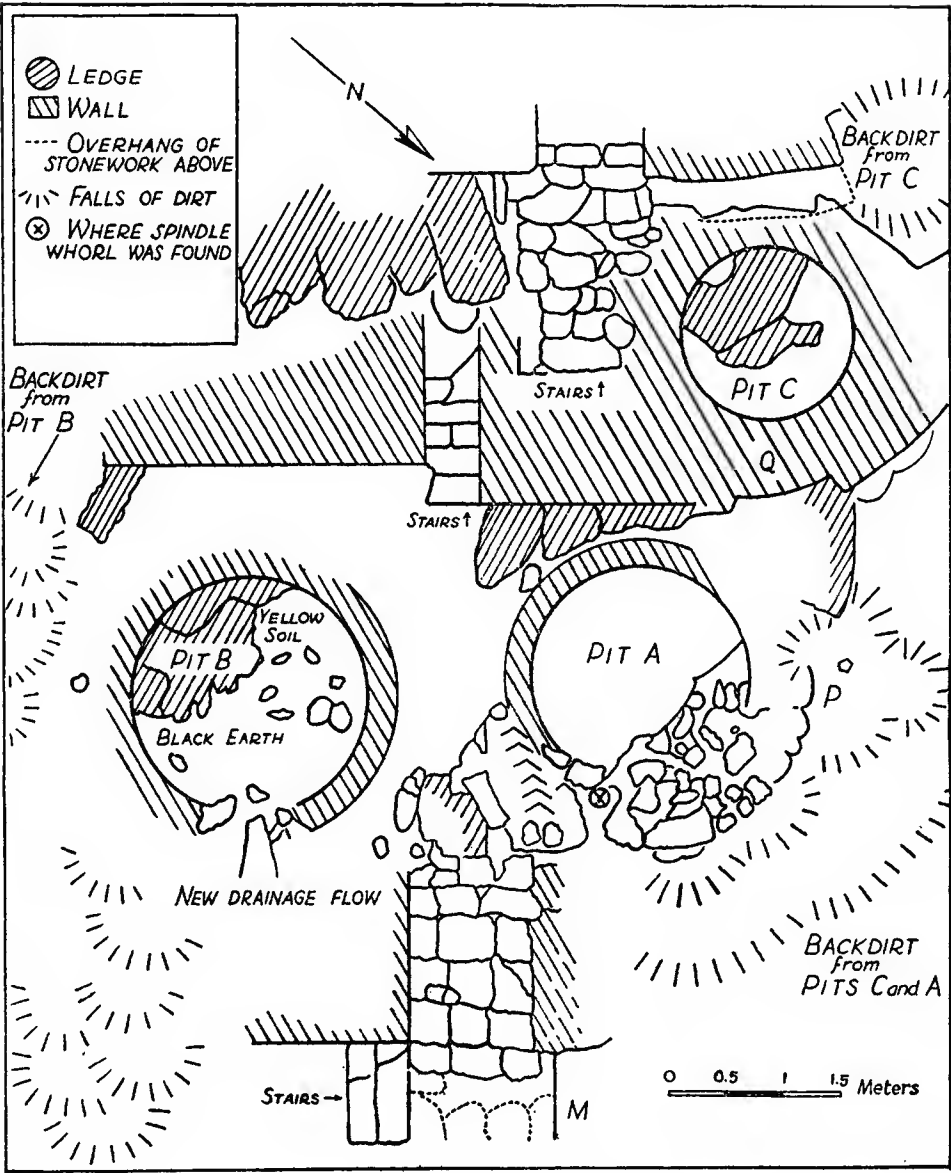


FIG. 17. MAP OF THE EXCAVATIONS BY JOHN H. ROWE AT CHOQUESUYSU



and there is no sign that they were ever used for water storage. Other possibilities are that they were used for planting bushes, or for ornamental fires; the former is perhaps more likely, as there is little sign of fire. The extraordinary differences in depth of the pits make the problem difficult.

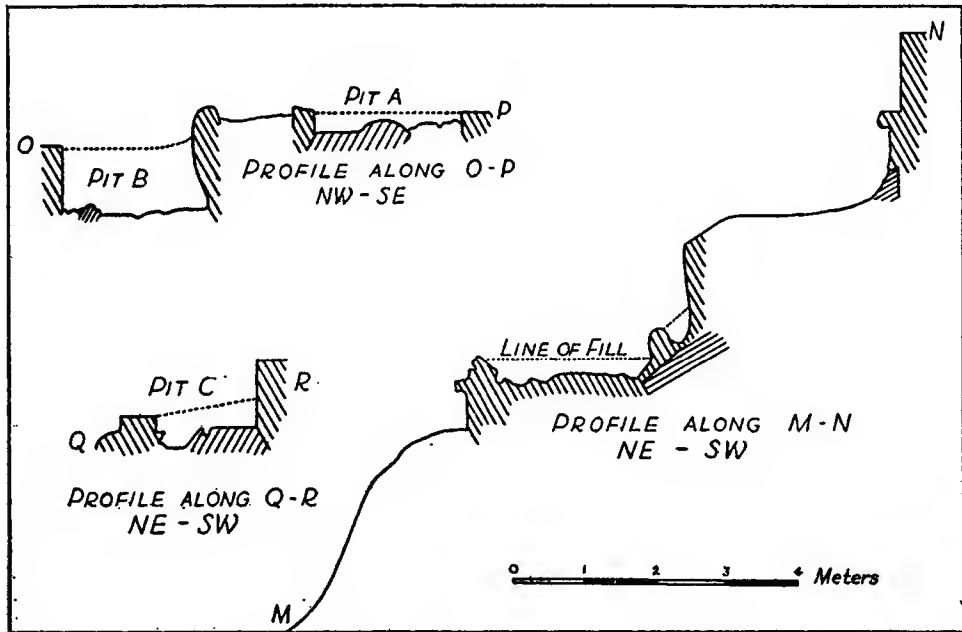


FIG. 18. CROSS SECTIONS OF THE EXCAVATIONS BY JOHN H. ROWE AT CHOQUESUYSUY

While I was working, the men cleaned out a handsome fountain (bath) down in the quebrada, and found a large quantity of pottery, which I appropriated for cleaning and study. It included parts of three painted pots, all with typical designs in late Inca style.

JOHN H. ROWE

Choquesuysuy, September 29, 1941.

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## PLATES

## EXPLANATION OF PLATES\*

PLATE 1. *Phuyu Pata Marka from the Northeast.*

This picture, taken during the first stages of clearing, shows only the upper structures. Plaza 1 and many of the lower terraces and house groups are still covered with debris and vegetation.

PLATE 2. *Phuyu Pata Marka from the East.*

Only the upper half of the site is visible, and at the lower center part of Plaza 1. Above the ruins is the ancient paved road to the site, cut into the mountainside.

PLATE 3. *Phuyu Pata Marka from the Northwest.*

The whole of the site is shown here, after the completion of clearing. The large boulders in the lower right corner of the picture serve as roofs for the cave.

PLATE 4. *Boulder in Plaza 1 at Phuyu Pata Marka.*

*Top*, The two carved seats on the western side of the boulder. The peak in the center of the picture is that of Machu Picchu mountain. *Bottom*, The eastern side of the boulder, showing the other pair of carved seats. In the right background the humus has been removed from the ancient pavement of the plaza.

PLATE 5. *House Groups 1 to 4 at Phuyu Pata Marka.*

In this bird's-eye view, House Groups 1 and 2 appear at the right, separated from Plaza 2 by the upper road, and House Groups 3 and 4 are to the left, beneath the lower road. The lower terraces at the left are still covered with scrub timber vegetation.

PLATE 6. *House Groups 3 and 4 at Phuyu Pata Marka.*

House Group 3 is in the background and House Group 4 in the foreground. Note the utilization of bedrock as a foundation for the houses.

PLATE 7. *House Group 3 at Phuyu Pata Marka.*

The site of Inty Pata may be seen on the distant mountain side to the left of the picture.

PLATE 8. *Niches and Windows at Phuyu Pata Marka.*

*Top*, The upper building in House Group 4. Niches and windows alternate in this building. *Bottom*, Typical niches at Phuyu Pata Marka.

PLATE 9. *Ring Stone and Stairway at Phuyu Pata Marka.*

*Top*, Ring stone at the entrance to the central stairway. *Bottom*, Stairway leading to Plaza 2. Note the excellence of construction which is characteristic of the retaining wall around this plaza.

PLATE 10. *Baths 2 to 6 at Phuyu Pata Marka.*

In front of this row of baths is the main water channel through the site. Beyond the row, the clearing of Plaza 1 has been begun but only the carved boulder is visible. The connecting channels may be seen between the baths.

PLATE 11. *Baths 1 and 6 at Phuyu Pata Marka.*

*Top*, Bath 1. The grooved stone slab which served as the entrance for the water is visible at the

\* The place and direction of camera in taking pictures illustrated by plate are shown on the figures by numbered circles with arrows.

lower right of the picture. *Bottom*, Bath 6. The man is standing in front of the drain leading to the main water channel.

PLATE 12. *Bridge at Phuyu Pata Marka.*

This is a view of the main water channel, as it was being cleared. It shows the large stone slab by means of which the lower road was conducted across the channel.

PLATE 13. *Terraces at Phuyu Pata Marka.*

This picture was taken in the lower half of the site.

PLATE 14. *Cave 1 at Phuyu Pata Marka.*

A thick masonry support is visible on the left side of the boulder. In back of it is the roadway leading to Sayac Marka and Runcu Raccay.

PLATE 15. *Northern Side of Sayac Marka.*

This view was taken from the entrance court, during clearing. Bath 3 can be seen at the right center of the picture.

PLATE 16. *Uppermost Building at Sayac Marka.*

This is the building in the entrance court, as seen from the northernmost terrace. The descending stairway leads from the entrance court to the site proper.

PLATE 17. *House Group 1 at Sayac Marka.*

The semicircular building in the entrance court is visible in the background.

PLATE 18. *Gable in House Group 2 at Sayac Marka.*

The peak of this gable, above the window, is missing. On both sides of the window, ring stones are visible.

PLATE 19. *Niche in House Group 2 at Sayac Marka.*

A ring stone is visible on the left side of the niche.

PLATE 20. *Peg, Spout, and Ring Stone at Sayac Marka.*

*Upper left*, Peg. *Upper right*, Spout for conducting rainwater away from the houses and off the terraces. *Bottom*, Ring stone.

PLATE 21. *Inty Pata from the Southeast.*

This bird's-eye view was taken after clearing.

PLATE 22. *Clearing of a Terrace at Inty Pata.*

The vegetation covering the terraces consisted mostly of extremely tough and thick bamboo.

PLATE 23. *Upper Part of Inty Pata.*

This picture shows Stairway 1, the western terraces, House Groups 1 and 2 (at the top left), and House Groups 3 and 4 (to the right center). The terraces in the lower left corner and the adjoining stairway are only partially cleared.

PLATE 24. *Central Part of Inty Pata.*

Here are shown Stairway 2, House Groups 1 and 2 and 3 and 4 (at the top), and a large part of the terraces at the site. The latter have been completely cleared.

PLATE 25. *Lower Part of Inty Pata.*

Stairway 2 and the lower terraces. The Observation House can be seen in the foreground and House Group 6, partially cleared, in the background.

PLATE 26. *Stairway 2 at Inty Pata.*

This view up the stairway was taken after preliminary clearing. The gutter on the left side of the stairway is still filled with debris.

PLATE 27. *Entrance Passage into House Group 3 at Inty Pata.*

This is typical of the narrow entrance passages at the site.

PLATE 28. *Courtyard in House Group 3 at Inty Pata.*

At the lower right the Urubamba River is visible in the bottom of the valley.

PLATE 29. *Central House in Group 6 at Inty Pata.*

Note the tall niches in the interior of the house.

PLATE 30. *Lowest House in Group 6 at Inty Pata.*

This house, which is seen from the front, was in the poorest condition of any at the site.

PLATE 31. *Typical Terrace at Inty Pata.*

The scrub timber vegetation in the background conceals a great number of additional terraces. At the center of the photograph are two rows of stone steps running up the faces of the terrace walls.

PLATE 32. *Chacha Bamba from Above.*

This view, taken from the mountain slope behind the site after partial clearing, shows the Urubamba River and the railroad in the background. The baths occupy the ends of the two plazas as flanking the central structure.

PLATE 33. *Central Buildings at Chacha Bamba.*

To the left is the gabled house on the western side of Plaza 1; in the center, the house between Plazas 1 and 2; and on the right, Plaza 2.

PLATE 34. *Boulder Shrine at Chacha Bamba.*

Top, Front view of the shrine showing the seat-like depression and one of the carved steps. Bottom, Rear view of the shrine. Both of the seats are visible here. (These two drawings, while correct in scale, do not show the exact number of building stones.)

PLATE 35. *Boulder Shrine at Chacha Bamba.*

Only the lower of the two seats shows here. Most of the remnants of the rear wall are also hidden behind the boulder.

PLATE 36. *Boulder Shrine at Chacha Bamba.*

In this rear view of the shrine, note the contrast between the masonry in the lower and upper parts of the wall.

PLATE 37. *Plaza 1 at Chacha Bamba.*

The buildings shown here are on the south and west sides of the plaza, respectively. The quadrangular pillar in front of each of them probably served as a roof support.

PLATE 38. *Building between Plazas 1 and 2 at Chacha Bamba.*

This picture, taken from the boulder shrine on the far side of Plaza 1, shows the northern room in the large central building which dominates the site.

PLATE 39. *Building between Plazas 1 and 2 at Chacha Bamba.*

This is a view of the southern room in the central building, as seen from Plaza 2. Note that the apertures which appeared as windows in Plate 38 become doors in this view, because of the difference in level on the two sides of the central wall.

PLATE 40. *Windows, Niches, and Stucco at Chacha Bamba.*

Left, Remnants of the gabled wall on the eastern end of the central building between Plazas 1 and 2, and facing the latter. A window and a typical niche are shown. Right, Remnants of stuccoing in the western building on Plaza 1.

PLATE 41. *Building on the East Side of Plaza 2 at Chacha Bamba.*

This view is from the west side of the plaza.

PLATE 42. *Building on the South Side of Plaza 2 at Chacha Bamba.*

This view is also from the plaza.

PLATE 43. *Building and Baths behind the Plaza Structures at Chacha Bamba.*

Top, Baths 1 to 4 during clearing. In the right background may be seen the end of one of the poorly constructed buildings behind Plaza 2. Bottom, Baths 12 to 14 after clearing.

PLATE 44. *Baths 12 to 14 at Chacha Bamba.*

This photograph was taken after clearing.

PLATE 45. *Eastern Part of Choquesuysuy.*

The terraces are shown here after they had been partially cleared.

PLATE 46. *Central Part of Choquesuysuy.*

The quebrada and the waterfall are visible in the center of the picture, flanked on the left by House Groups 1 and 2 and on the right by House Groups 3 and 4.

PLATE 47. *Western Part of Choquesuysuy.*

House Groups 3 to 8 are visible to the left and left center.

PLATE 48. *Eastern Cluster of Buildings at Choquesuysuy.*

Ornamental Facade 1 and House Group 2 are shown here, surrounded by partially cleared terraces.

PLATE 49. *Western Cluster of Buildings at Choquesuysuy.*

The Choquesuysuy quebrada is visible at the left center of the picture and the western terraces at the right. Ornamental Facade 2 occupies the center of the picture; beneath it are the buildings of House Group 3.

PLATE 50. *Ornamental Facade 2 at Choquesuysuy.*

Although the scale of this isometric drawing is correct, the perspective used gives an exaggerated thickness to the facade.

PLATE 51. *Ornamental Facade 2 at Choquesuysuy.*

The aperture on the right of the facade is the doorway; the rest are niches.

PLATE 52. *Ornamental Facade 2 at Choquesuysuy.*

The terrace steps leading up to the gallery of niches can be seen in the lower center.

PLATE 53. *Ornamental Facade 2 at Choquesuysuy.*

Top, Side view of the facade. Bottom, Rear view of the facade, showing the road and stairway which run across the top of the site. At the left side of the picture, the eastern cluster of buildings is visible.

PLATE 54. *House Groups 1 and 2 at Choquesuysuy.*

Clearing had been only partially completed when this picture was taken.

PLATE 55. *House Group 2 at Choquesuysuy.*

Only the upper part of the group is shown, along with the tunnel leading to House Group 1 (which is at the left center).

PLATE 56. *Tunnel between House Groups 1 and 2 at Choquesuysuy.*

This photograph, which was taken from House Group 2, was made during clearing. Hence, the actual flooring of the tunnel is still covered with accumulated debris and humus.

PLATE 57. *House Group 3 at Choquesuysuy.*

Although the scale of this drawing is correct, the perspective used tends to exaggerate the thickness of the front and rear walls of the house.

PLATE 58. *Niches and Alcove at Choquesuysuy.*

Left, A group of niches on the gable wall of House Group 3. Right, Alcove in the terrace near House Group 3. Note the three niches in the alcove.

PLATE 59. *Western Room in House Group 4 at Choquesuysuy.*

The stairway separating House Group 4 from House Group 5 is at the right of the picture.

PLATE 60. *Niches and Peg Stones in House Group 4 at Choquesuysuy.*

This is a view of the southern wall of the group. Note that the peg stones are between the niches rather than above them, and therefore could not have served as supports for a second story without the latter cutting through the niches.

PLATE 61. *Niches Outside House Group 4 at Choquesuysuy.*

These niches on the eastern side of the House Group may have originally been in another room, of which no traces now remain.

PLATE 62. *Fountain in House Group 4 at Choquesuysuy.*

Left, isometric drawing of the fountain, as cleared. Right, The fountain during clearing.

PLATE 63. *Circular Pits beneath Ornamental Facade 2 at Choquesuysuy.*

One of these pits is shown on the left, another in the center, and the third in the lower right corner of the picture.

PLATE 64. *Baths 1-5 at Choquesuysuy.*

In the lower central part of this isometric drawing is the overflow channel believed to have been constructed after the building of the baths themselves, although before the baths were filled in to make terraces.

PLATE 65. *Baths 1 to 5 at Choquesuysuy.*

House Group 4 is partially visible in the upper right corner of the photograph.

PLATE 66. *Baths 2 and 3 at Choquesuysuy.*

This picture was taken from above during the clearing of the baths.

PLATE 67. *Bath 2 at Choquesuysuy.*

The view here is from below; the bath has not yet been completely cleared.

PLATE 68. *Road behind House Group 5 at Choquesuysuy.*

Looking west along the top of House Group 5 from the stairway between Groups 4 and 5. The rocks imbedded in the wall in the background were apparently there originally; the rest probably have fallen from above since the abandonment of the site.



PLATE 69. *Monolithic Steps in the Quebrada of Choquesuysuy.*

The road connecting the two ornamental facades is just behind the great boulder on the left side of the waterfall.

PLATE 70. *Stairway between House Groups 4 and 5 and 6 and 7 at Choquesuysuy.*

This is the main stairway in the western half of the site. In the background are the Urubamba River and the railroad from Cuzco to Machu Picchu.

PLATE 71. *Eastern Terraces at Choquesuysuy.*

House Group 2 is partially visible in the upper left corner of the picture; the quebrada is in the upper right corner.

PLATE 72. *Masonry in Terrace Walls at Choquesuysuy.*

*Top*, Detail of a wall on the eastern side of the quebrada. This rustic masonry is typical of most of the structures at the site. *Bottom*, Another type of masonry found only in the area immediately below Ornamental Facade 2.

PLATE 73. *Grooves in Terrace Walls at Choquesuysuy.*

Both photographs on this plate were taken below House Group 2.

PLATE 74. *Masonry Details at Wiñay Wayna.*

*Top*, Peg inset in a wall in the lower house cluster. *Bottom*, Masonry in the terrace wall supporting the upper house cluster. These are the largest and most beautifully fitted stone blocks in the whole area.

PLATE 75. *Gable Wall at Wiñay Wayna.*

This picture was taken after partial clearing in the lower house cluster.

PLATE 76. *"Fortress" near Inty Pata.*

This view from above after partial clearing shows the valley and river of Urubamba in the background.

PLATE 77. *Isolated House between Phuyu Pata Marka and Sayac Marka.*

The stairway in front of the house is part of the road between Phuyu Pata Marka and Sayac Marka.

PLATE 78. *Ruin of Runcu Raccay.*

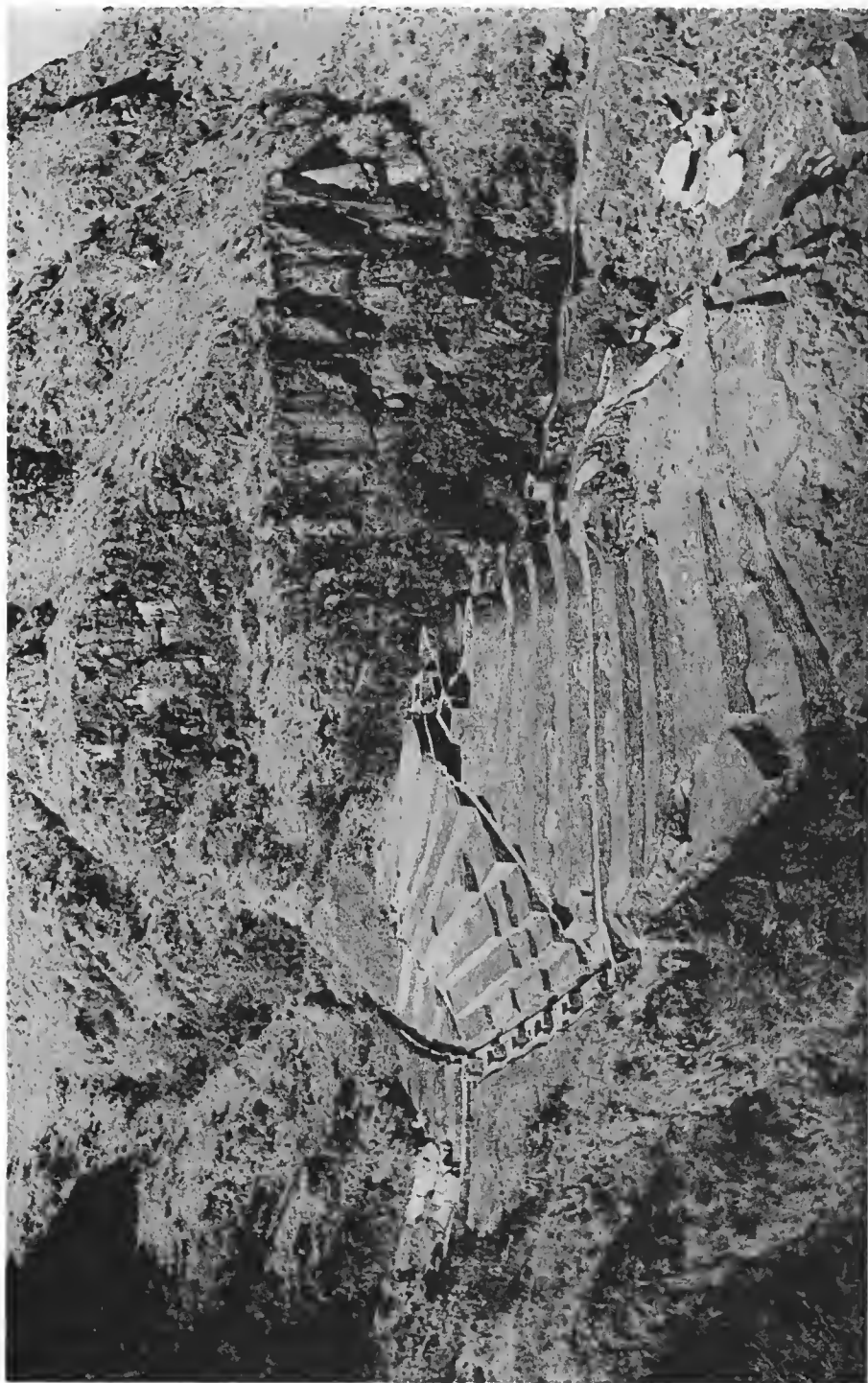
Note the five rooms surrounding the central courtyard instead of the four mentioned by Bingham in his description of Runcu Raccay.

PLATE 79. *Road between Phuyu Pata Marka and Sayac Marka.*

As usual, this road has not been cut into the mountainside, but has been formed by terracing the ground.

PLATE 80. *Tunnel between Phuyu Pata Marka and Sayac Marka.*

Note the monolithic steps carved in the granite floor of the tunnel and the seat cut alongside the steps.



PHUYU PATA MARKA FROM THE NORTHEAST



PHUYU PATA MARKA FROM THE EAST



PHUYU PATA MARKA FROM THE NORTHWEST

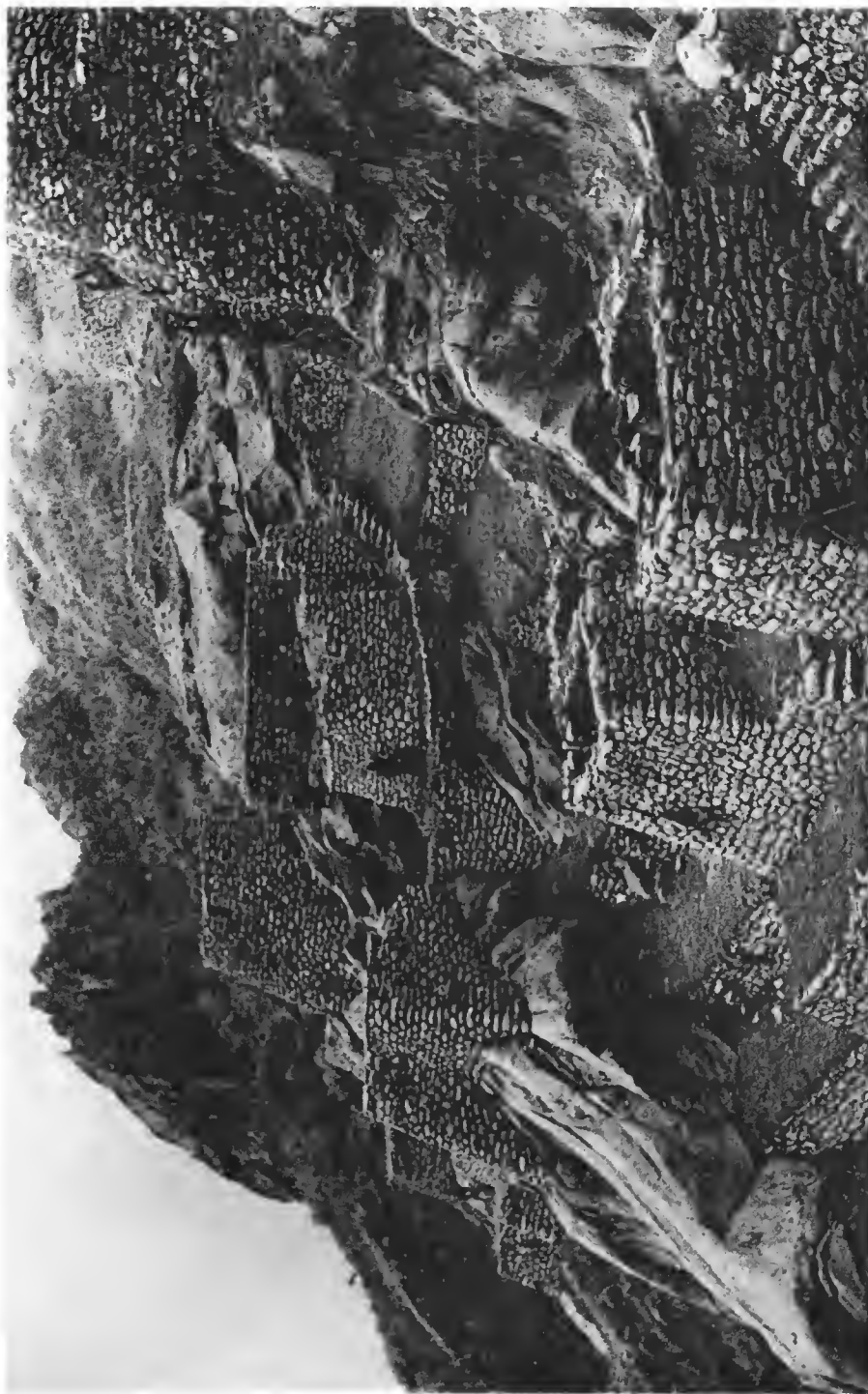


BOULDER IN PLAZA 1 AT PHUYU PATA MARKA

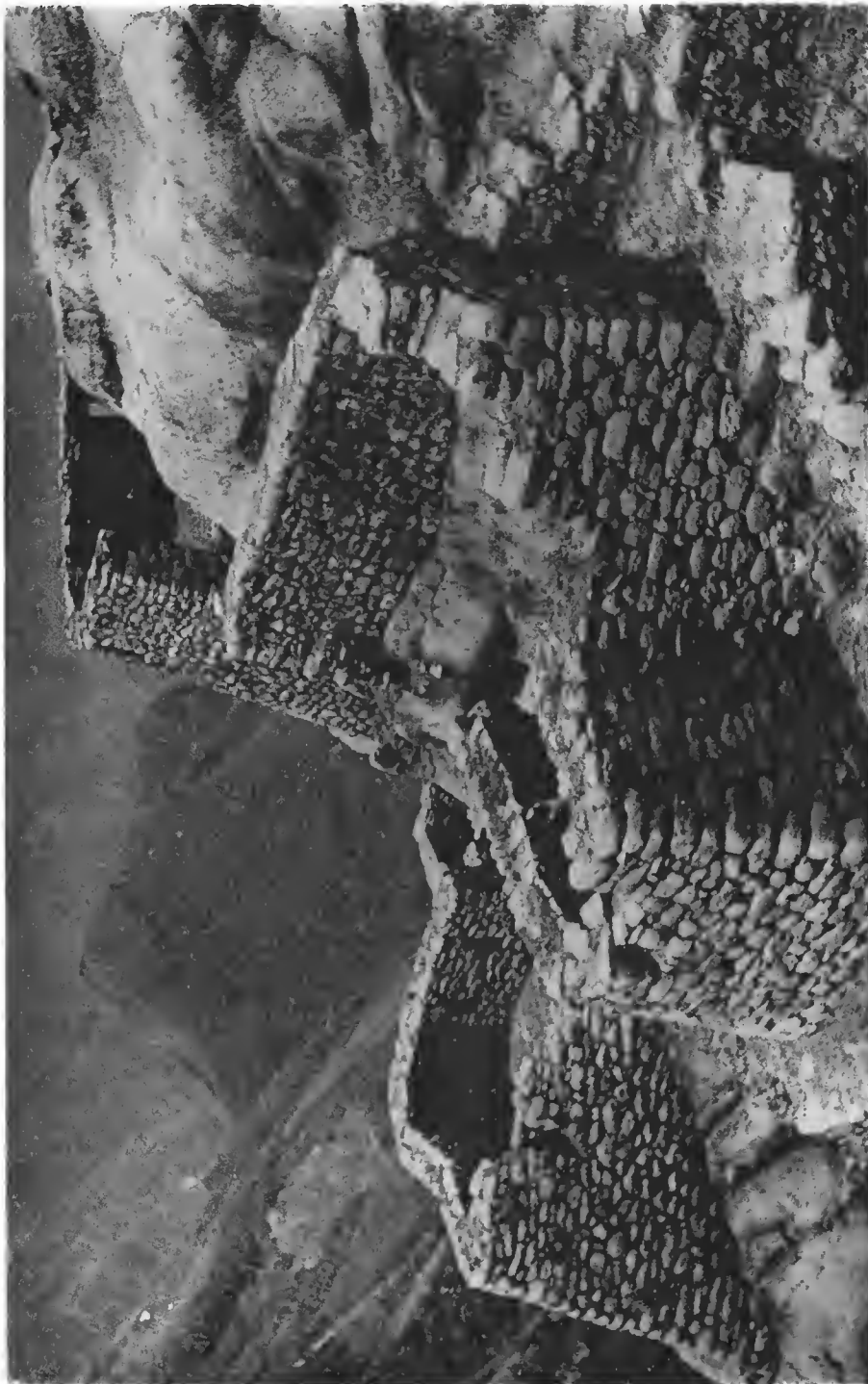




HOUSE GROUPS 1 TO 4 AT PHUYU PATA MARKA

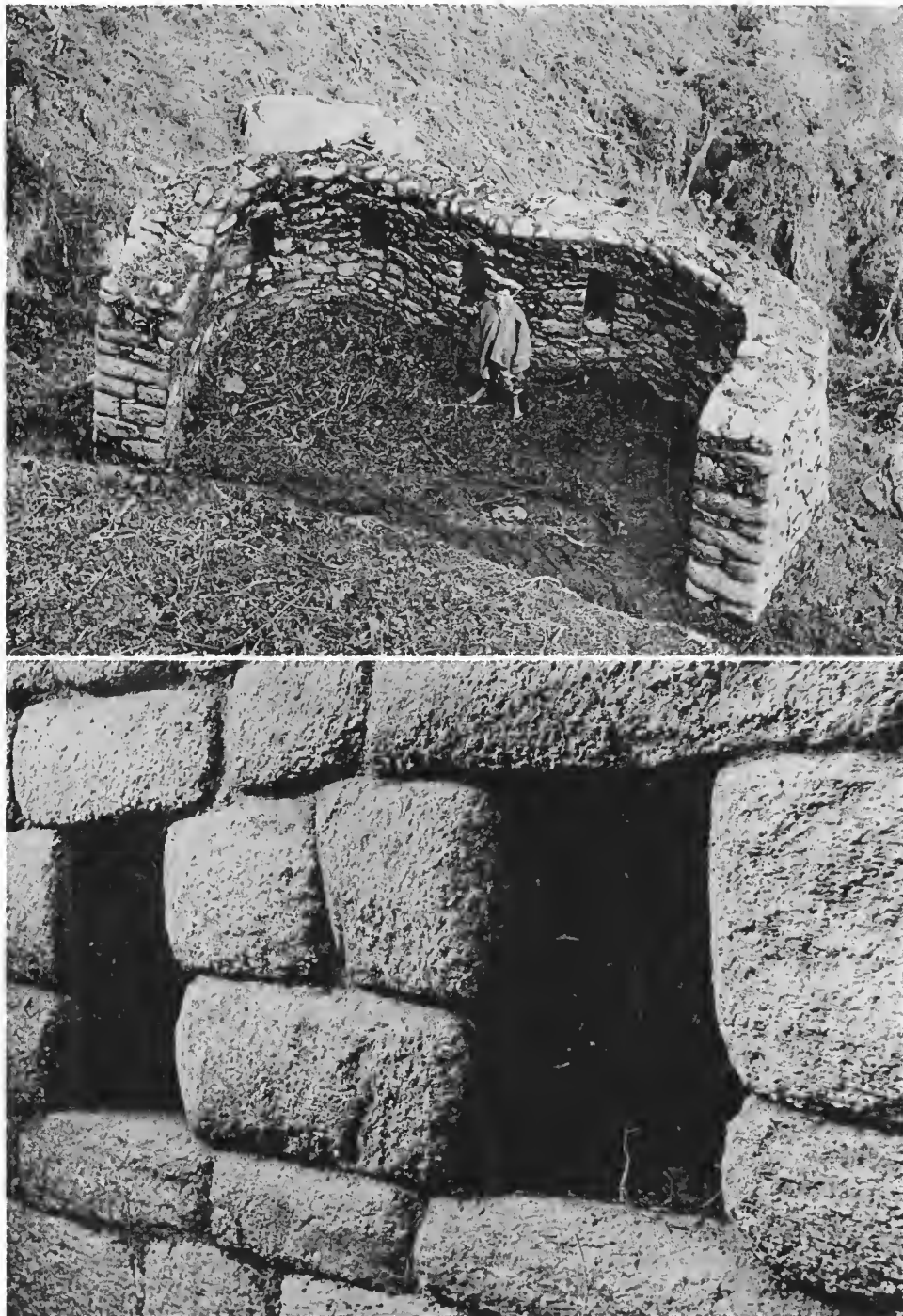


HOUSE GROUPS 3 AND 4 AT PHUYU PATA MARKA



HOUSE GROUP 3 AT PHUYU PATA MARKA





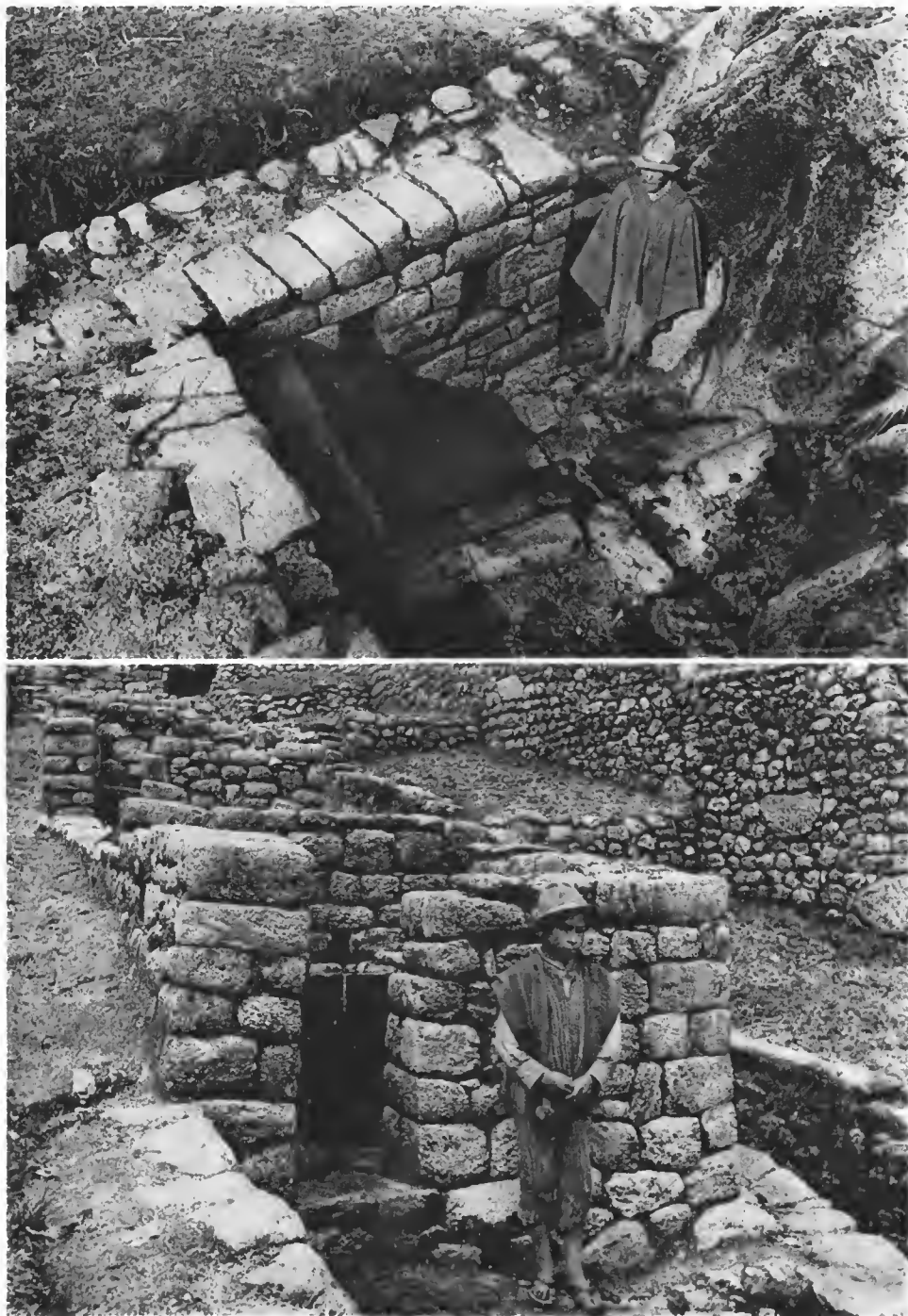
NICHES AND WINDOWS AT PHUYU PATA MARKA



RING STONE AND STAIRWAY AT PHUYU PATA MARKA



BATHS 2 TO 6 AT PHUYU PATA MARKA



BATHS 1 AND 6 AT PHUYU PATA MARKA



BRIDGE AT PHUYU PATA MARKA





TERRACES AT PHUYU PATA MARKA



CAVE 2 AT PHUYU PATA MARKA

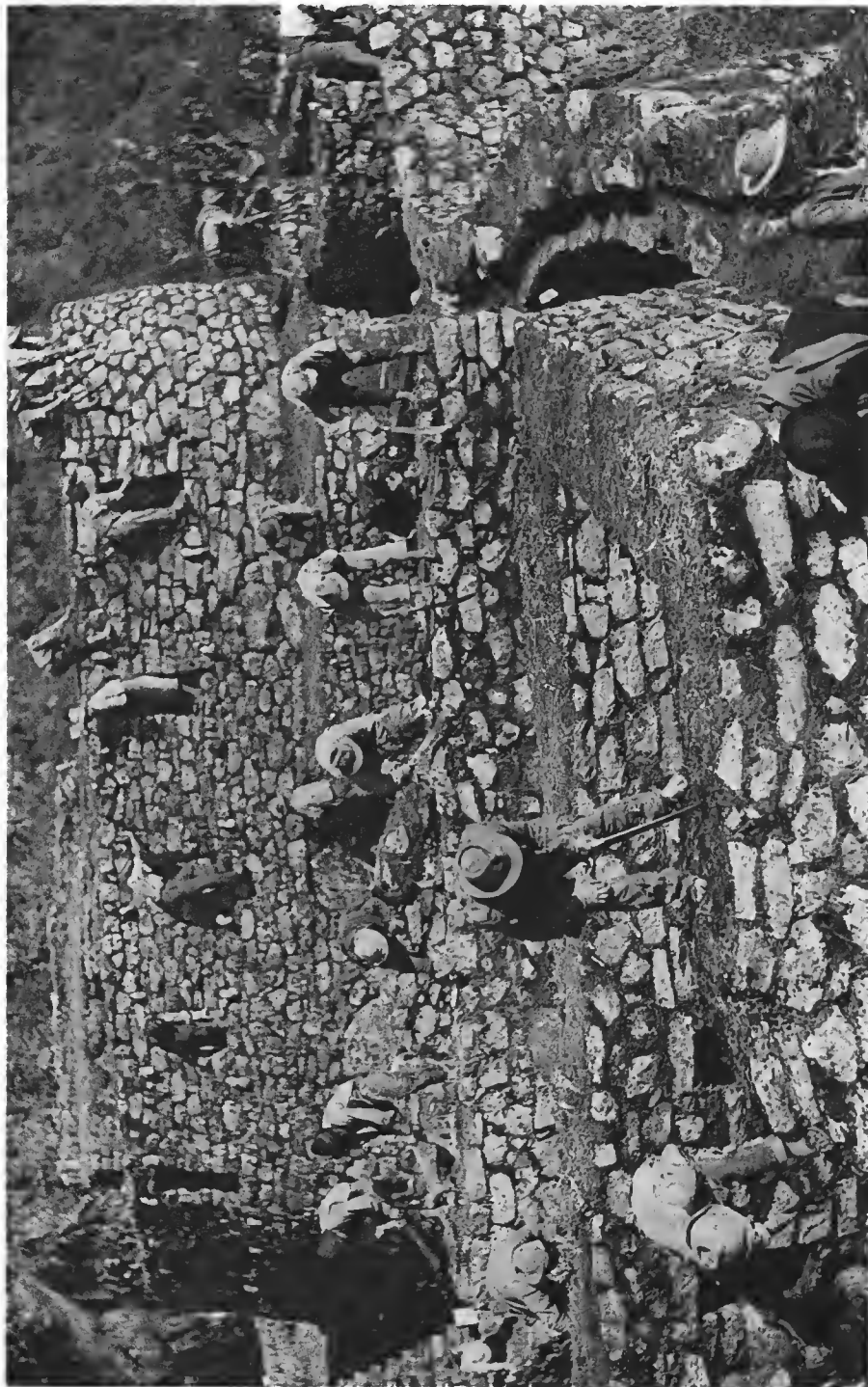


NORTHERN SIDE OF SAYAC MARKA





UPPERMOST BUILDING AT SAYAC MARKA



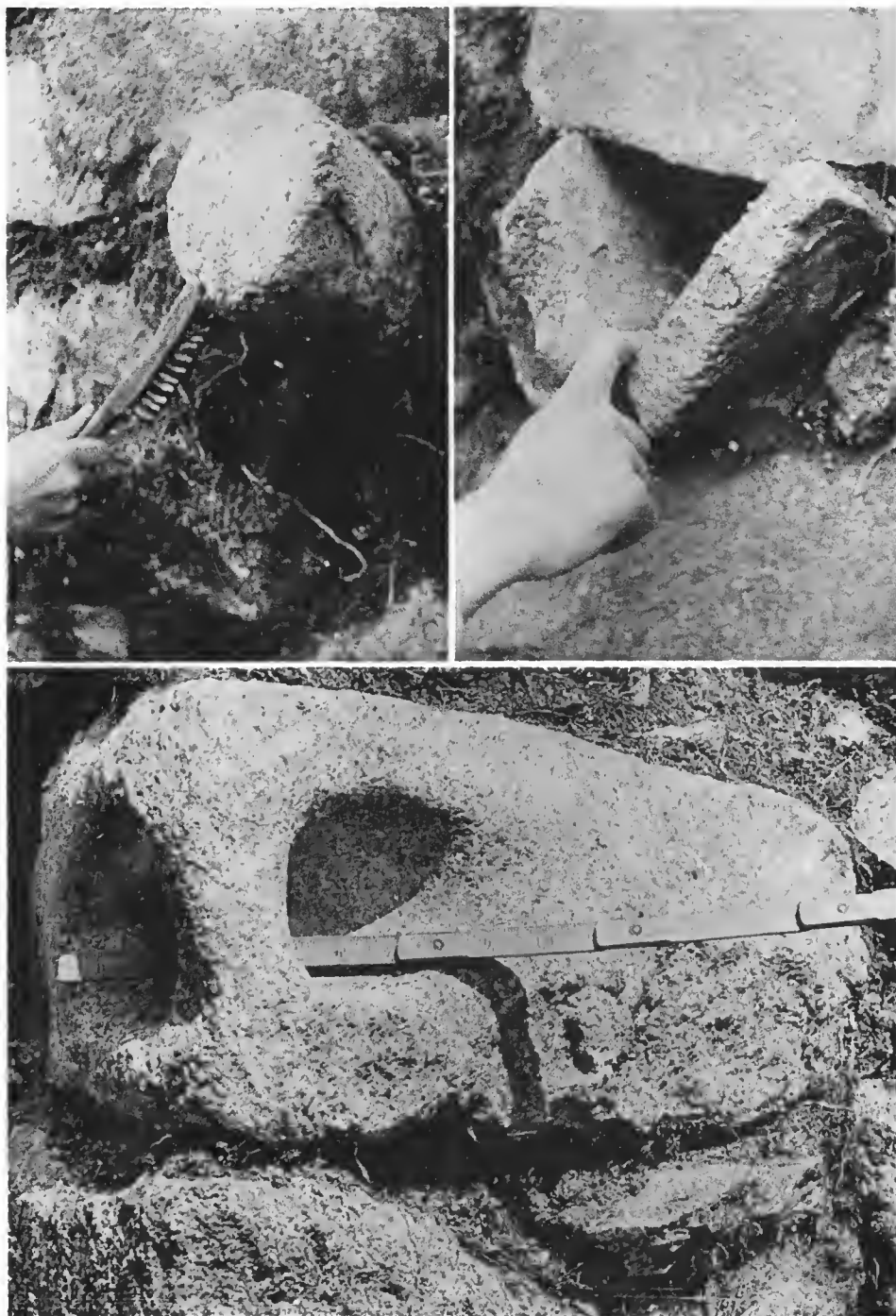
HOUSE GROUP 1 AT SAYAC MARKA



GABLE IN HOUSE GROUP 2 AT SAYAC MARKA



NICHE IN HOUSE GROUP 2 AT SAYAC MARKA



PEG, SPOUT, AND RING STONE AT SAYAC MARKA





INTY PATA FROM THE SOUTHEAST

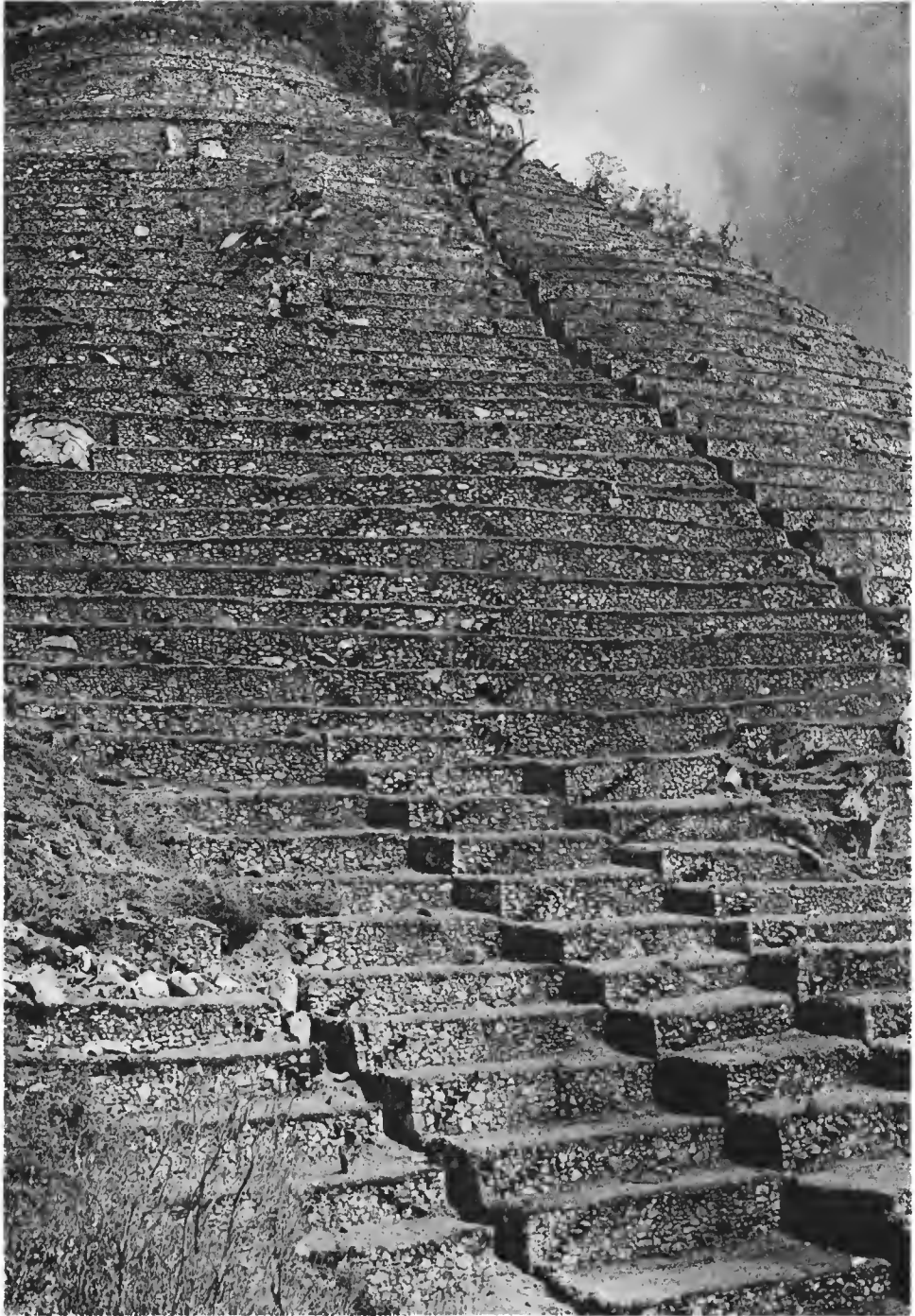


CLEARING OF A TERRACE AT INTY PATA



UPPER PART OF INTY PATA





CENTRAL PART OF INTY PATA



LOWER PART OF INTY PATA



STAIRWAY 2 AT INTY PATA



ENTRANCE PASSAGE INTO HOUSE GROUP 3 AT INTY PATA



COURTYARD IN HOUSE GROUP 3 AT INTY PATA





CENTRAL HOUSE IN GROUP 6 AT INTY PATA



LOWEST HOUSE IN GROUP 6 AT INTY PATA



TYPICAL TERRACE AT INTY PATA

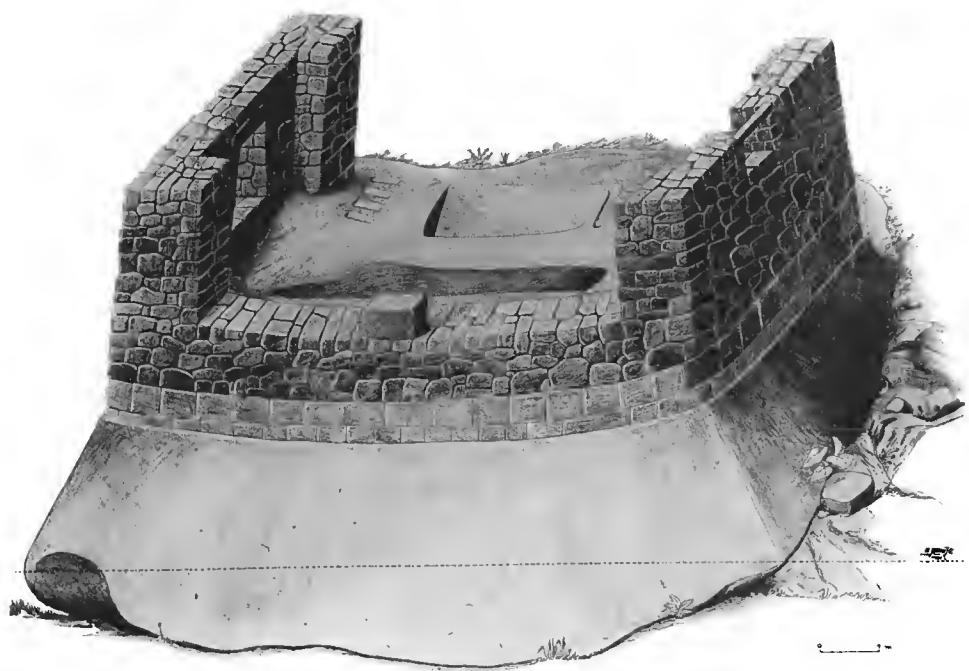
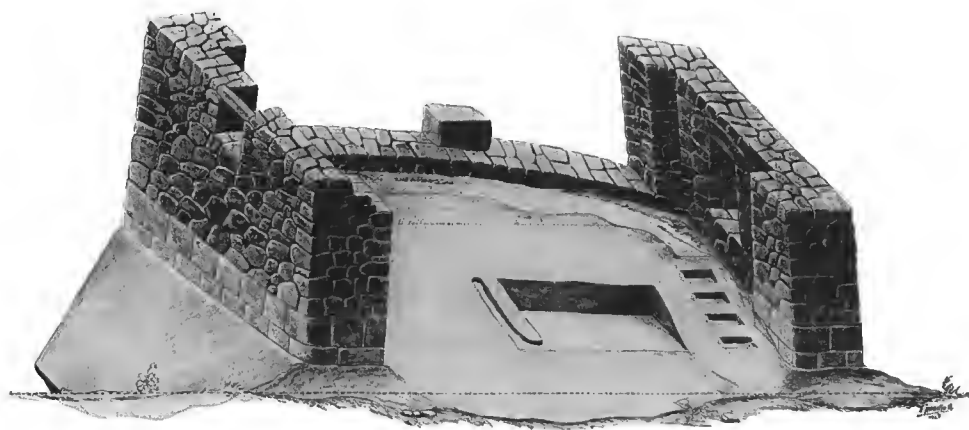




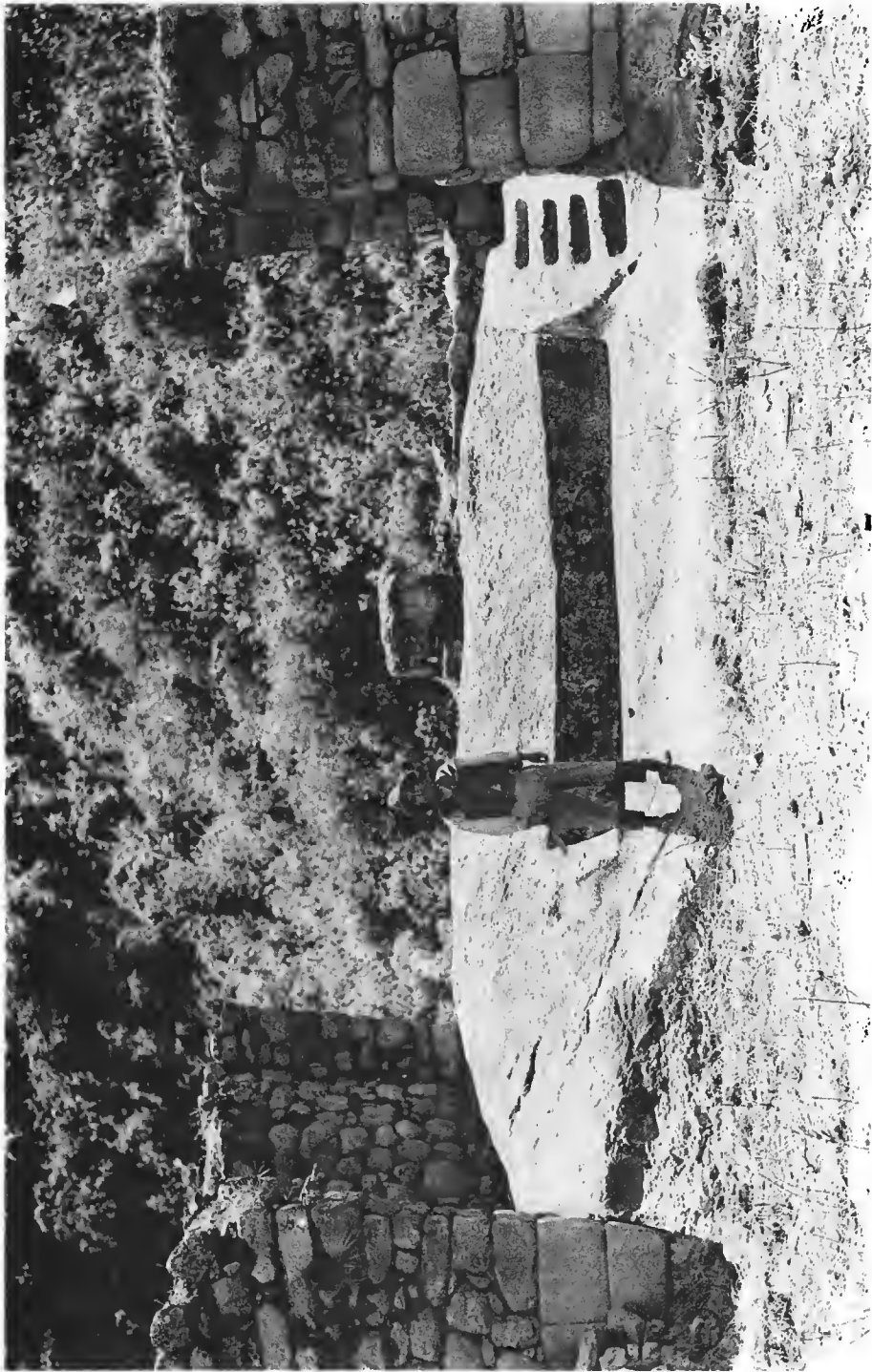
CHACHA BAMBA FROM ABOVE



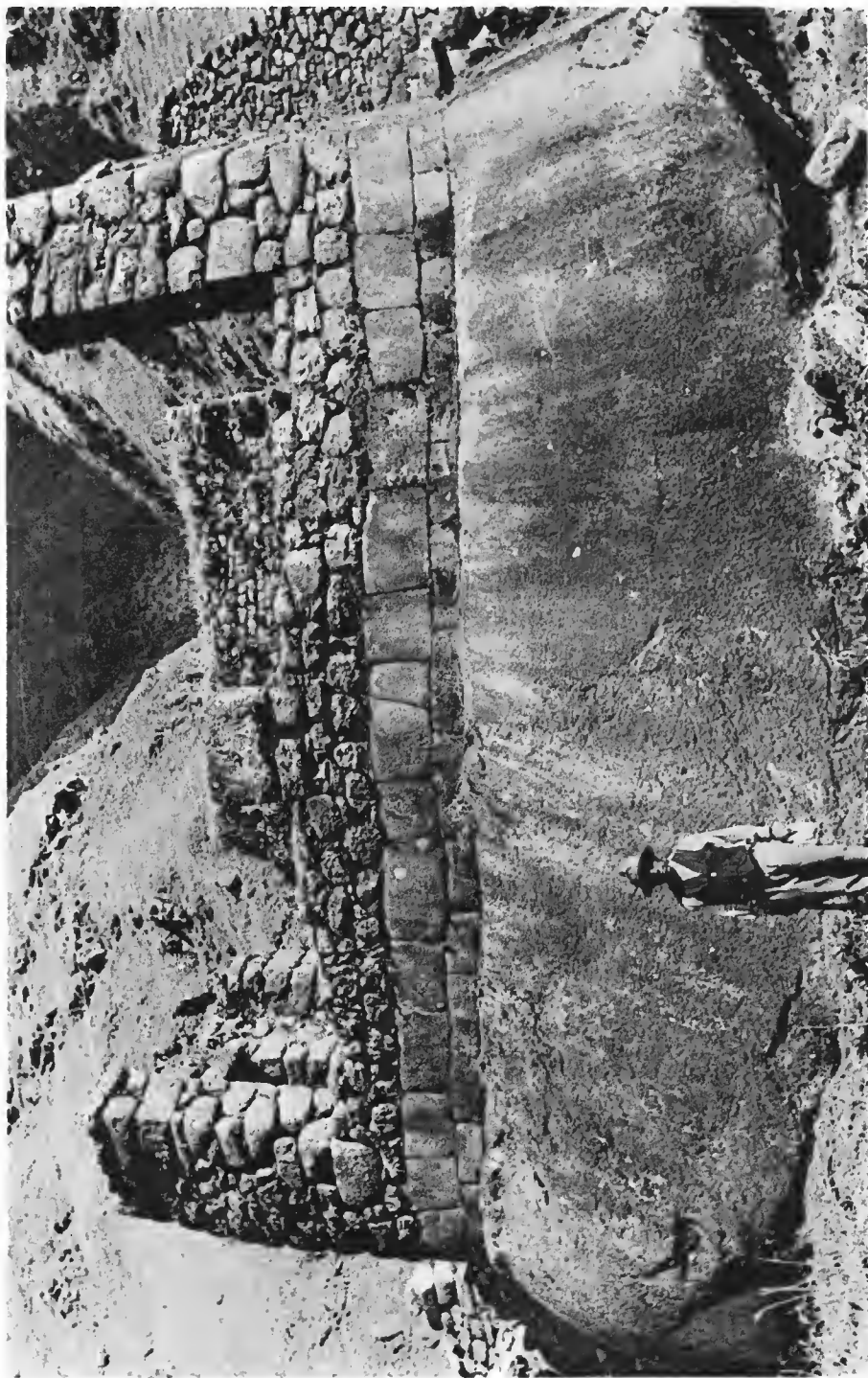
CENTRAL BUILDINGS AT CHACHA BAMBA



BOULDER SHRINE AT CHACHA BAMBA



BOULDER SHRINE AT CHACHA BAMBA



BOULDER SHRINE AT CHACHA BAMBA



PLAZA 1 AT CHACHA BAMBA





BUILDING BETWEEN PLAZAS 1 AND 2 AT CHACHA BAMBA

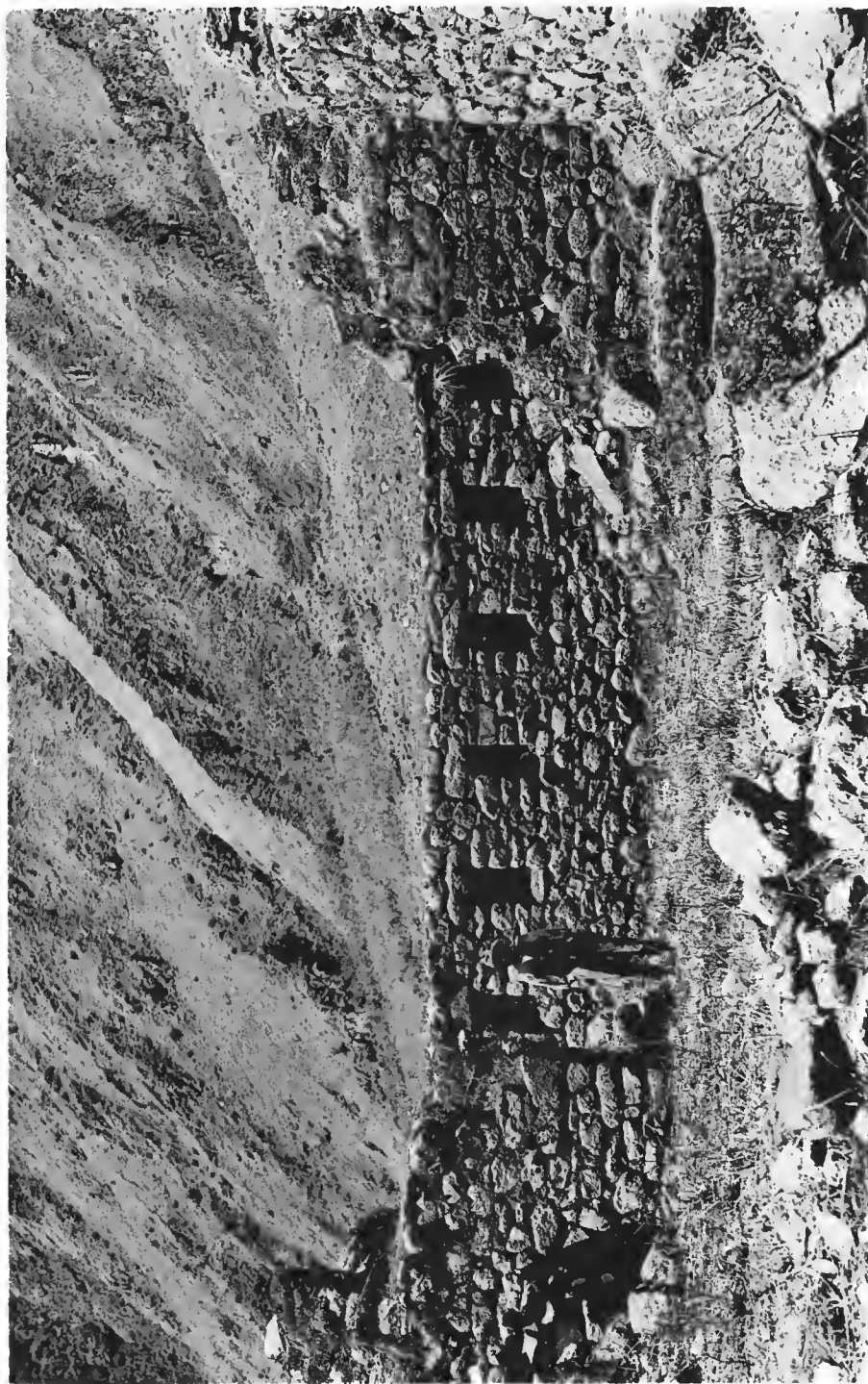


BUILDING BETWEEN PLAZAS 1 AND 2 AT CHACHA BAMBA





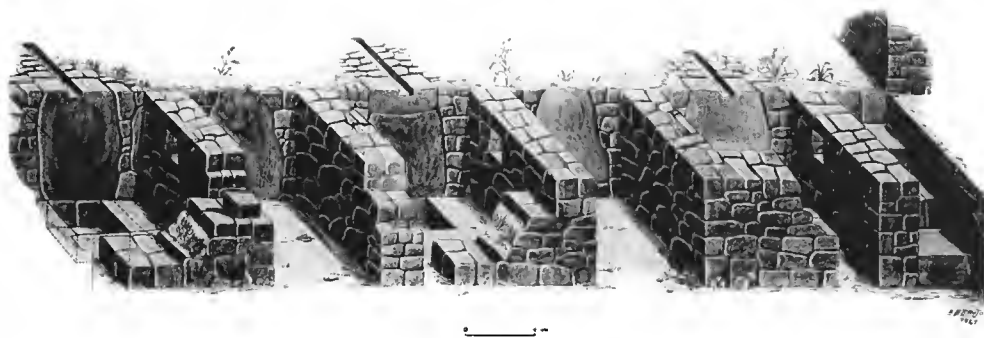
WINDOWS, NICHES, AND STUCCO AT CHACHA BAMBA



BUILDING ON THE EAST SIDE OF PLAZA 2 AT CHACHA BAMBA



BUILDING ON THE SOUTH SIDE OF PLAZA 2 AT CHACHA BAMBA

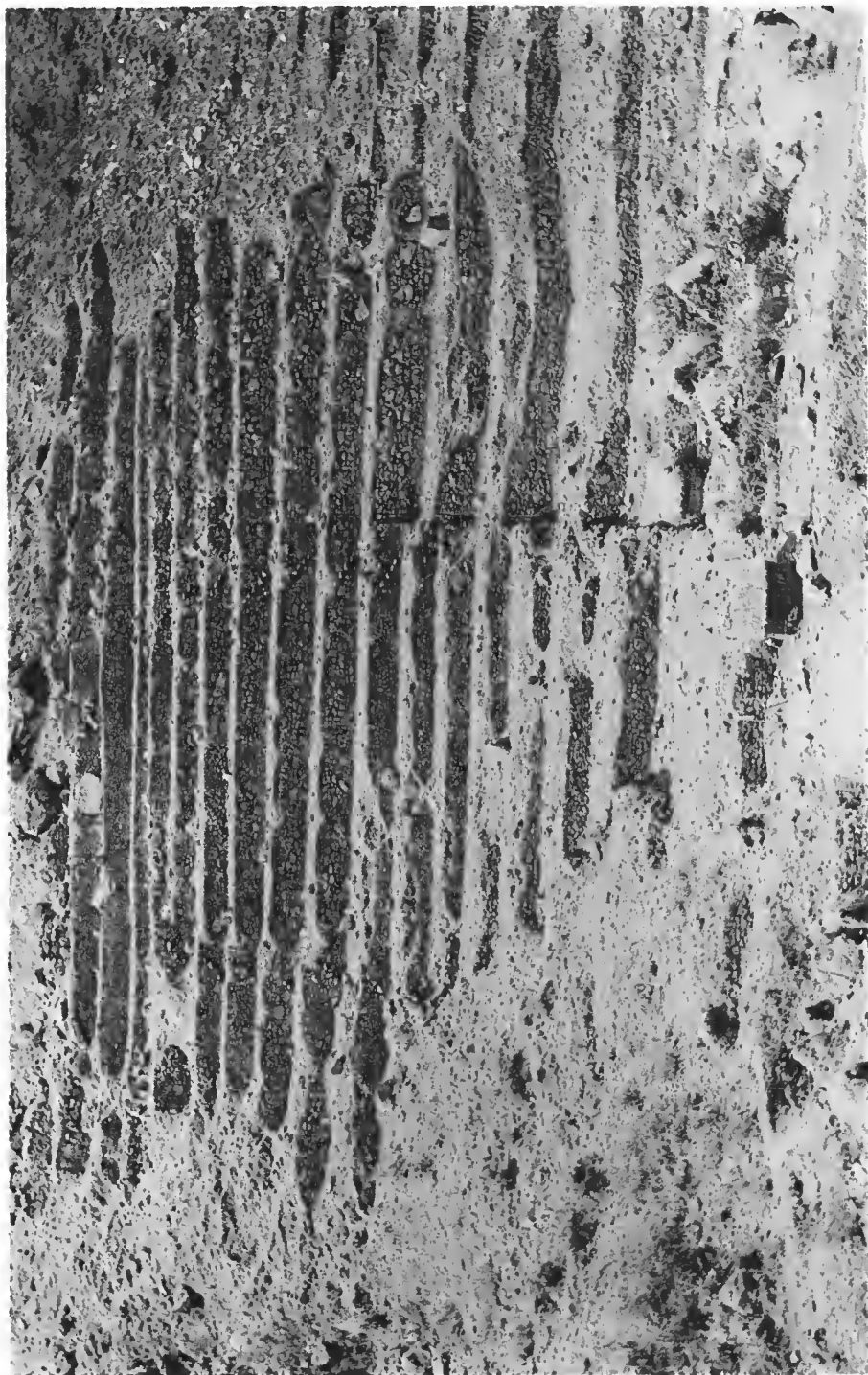


BUILDING AND BATHS BEHIND THE PLAZA STRUCTURES AT CHACHA BAMBA



BATHS 12 TO 14 AT CHACHA BAMBA





EASTERN PART OF CHOQUESUYUY



CENTRAL PART OF CHOQUESUYUY



WESTERN PART OF CHOQUESUYUY

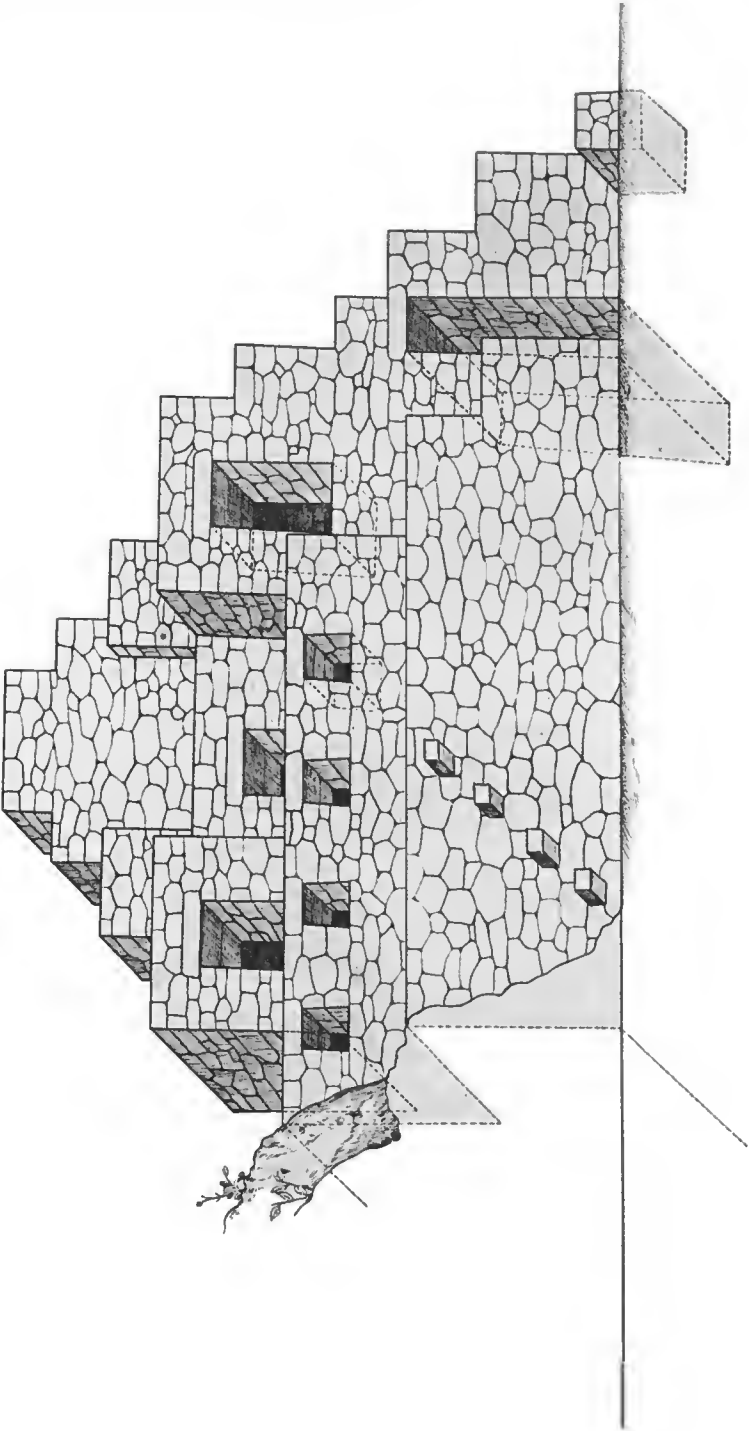




EASTERN CLUSTER OF BUILDINGS AT CHOQUESUYSUY



WESTERN CLUSTER OF BUILDINGS AT CHOQUESUYUY



ORNAMENTAL FACADE 2 AT CHOQUESUYSUY



ORNAMENTAL FACADE 2 AT CHOQUESUYUY



ORNAMENTAL FACADE 2 AT CHOQUESUYUY





ORNAMENTAL FACADE 2 AT CHOQUESUYSUY



HOUSE GROUPS 1 AND 2 AT CHOQUESUYUY

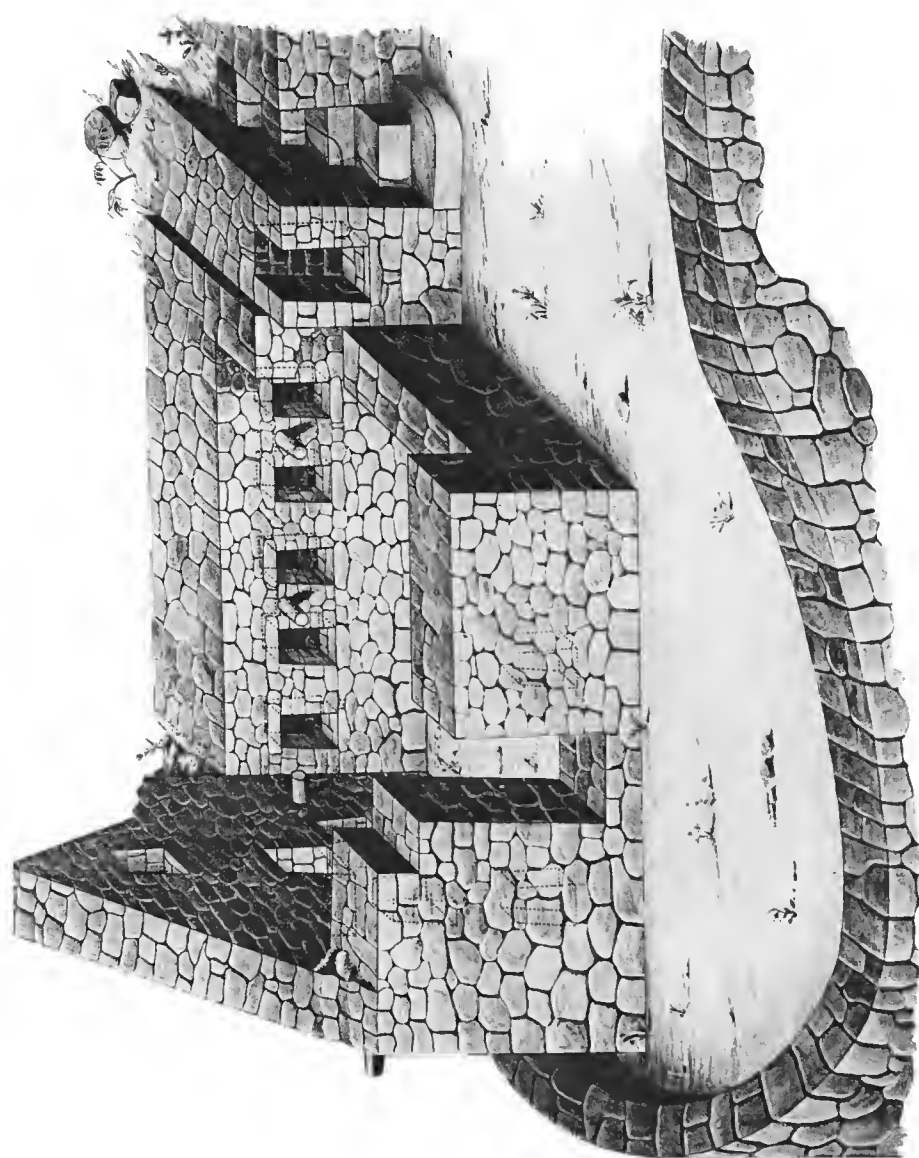


HOUSE GROUP 2 AT CHOQUESUY

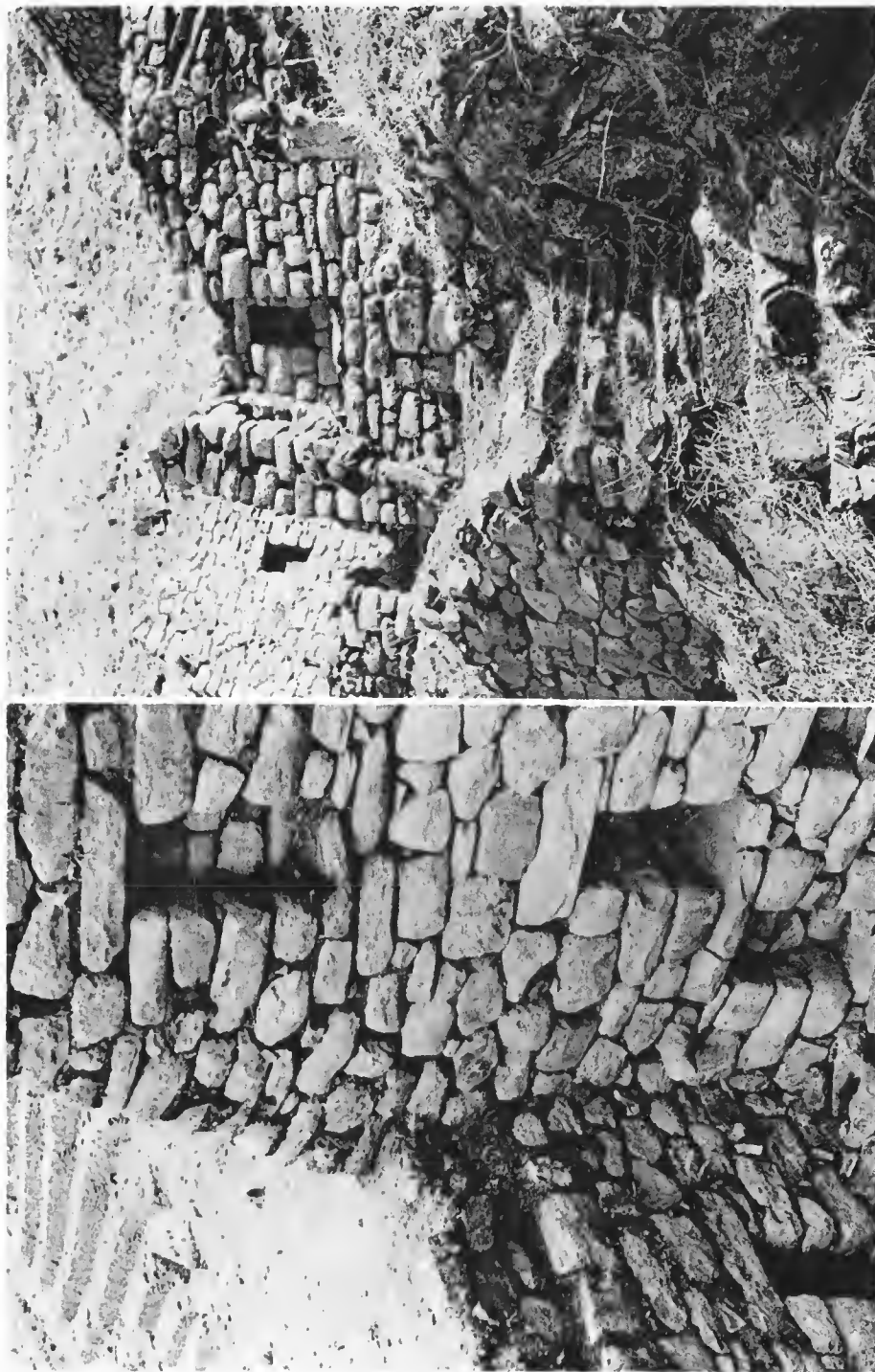




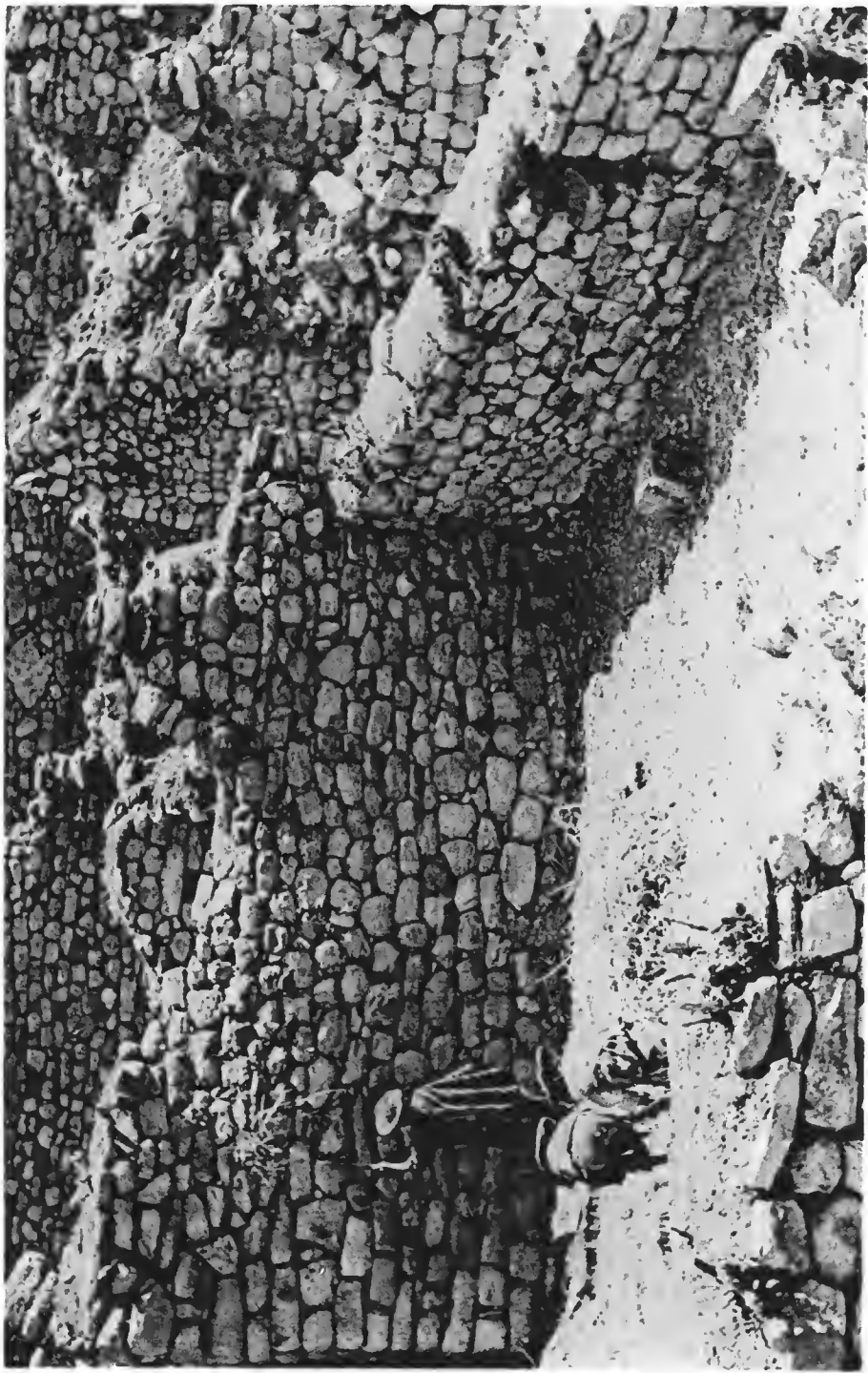
TUNNEL BETWEEN HOUSE GROUPS 1 AND 2 AT CHOQUESUYSUY



House Group 3 at Choquesuysuy



NICHES AND ALCOVE AT CHOQUESUY



WESTERN ROOM IN HOUSE GROUP 4 AT CHOQUESUYUY

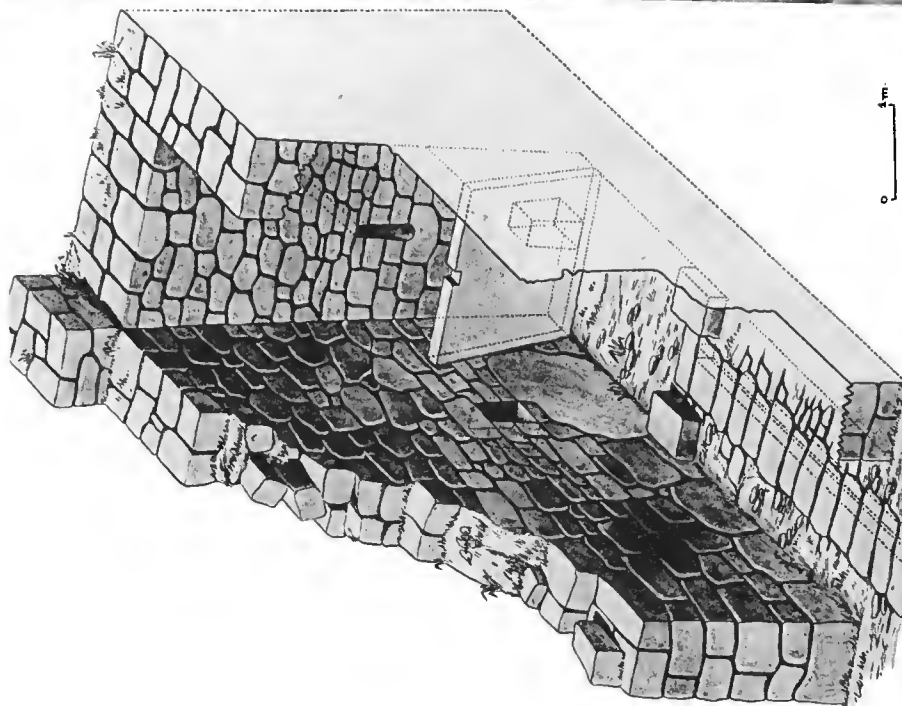


NICHES AND PEG STONES IN HOUSE GROUP 4 AT CHOQUESUYUY





NICHES OUTSIDE HOUSE GROUP 4 AT CHOQUESUYUY

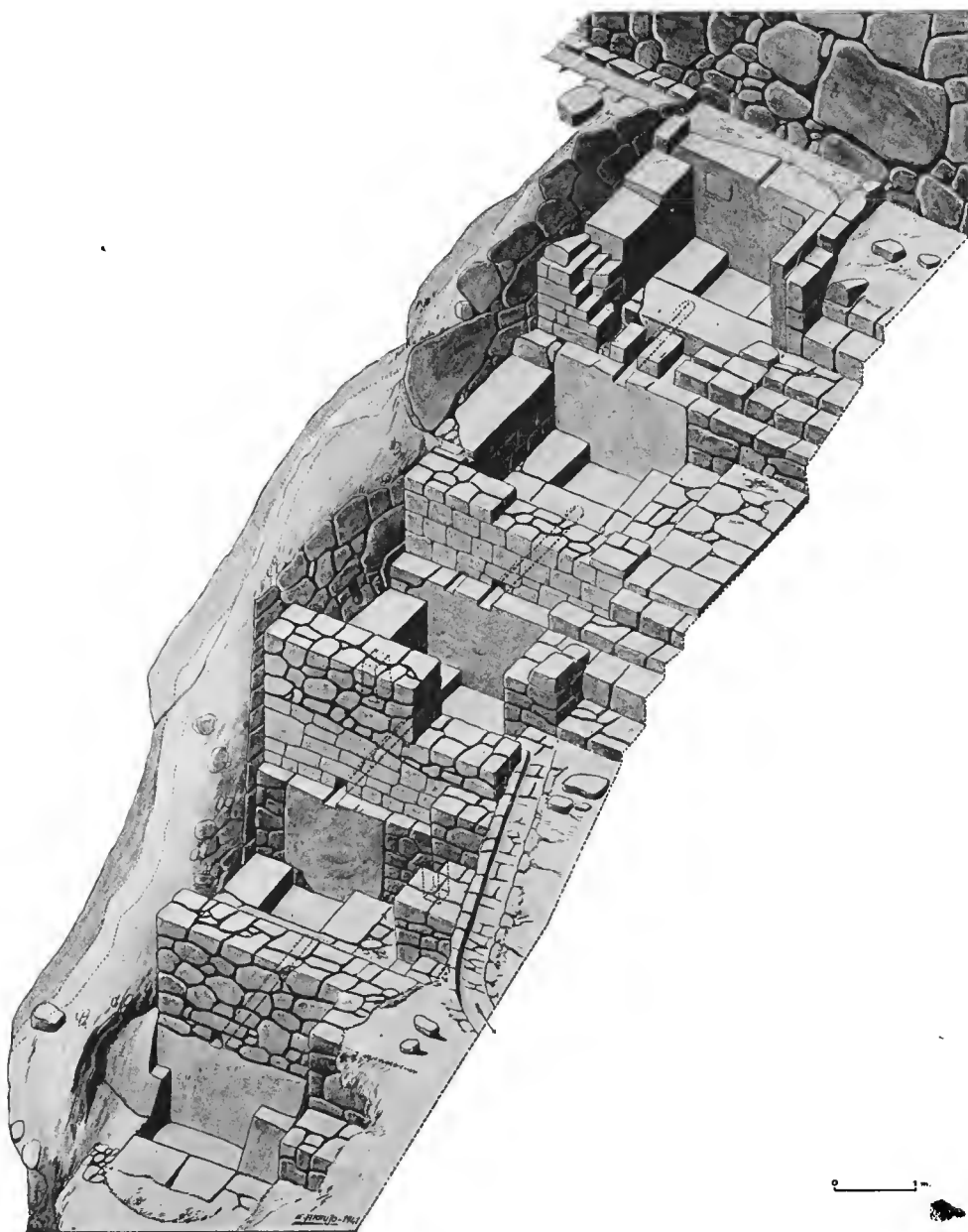


FOUNTAIN IN HOUSE GROUP 4 AT CHOQUESUYUY

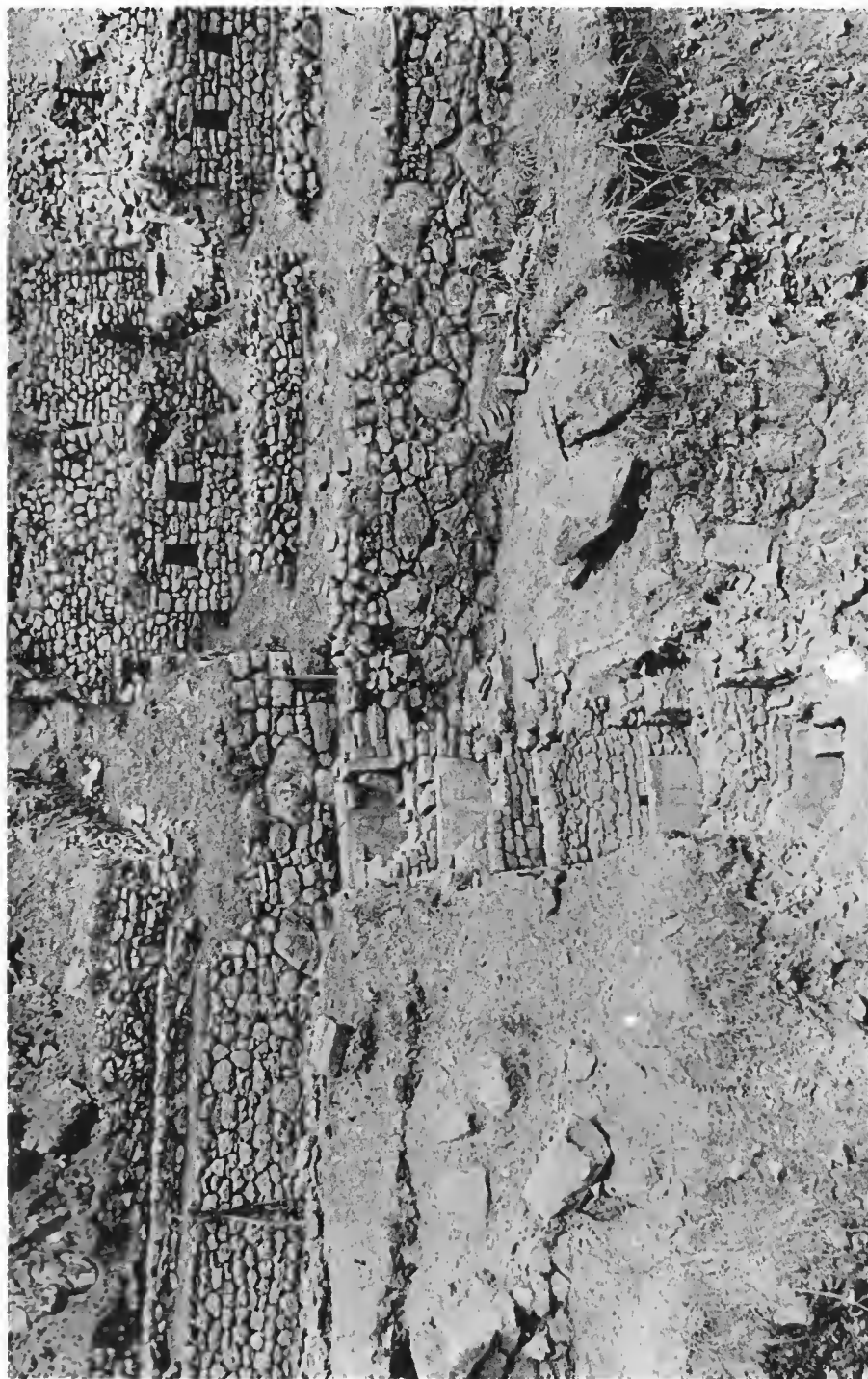


CIRCULAR PITS BENEATH ORNAMENTAL FACADE 2 AT CHOQUESUSUY





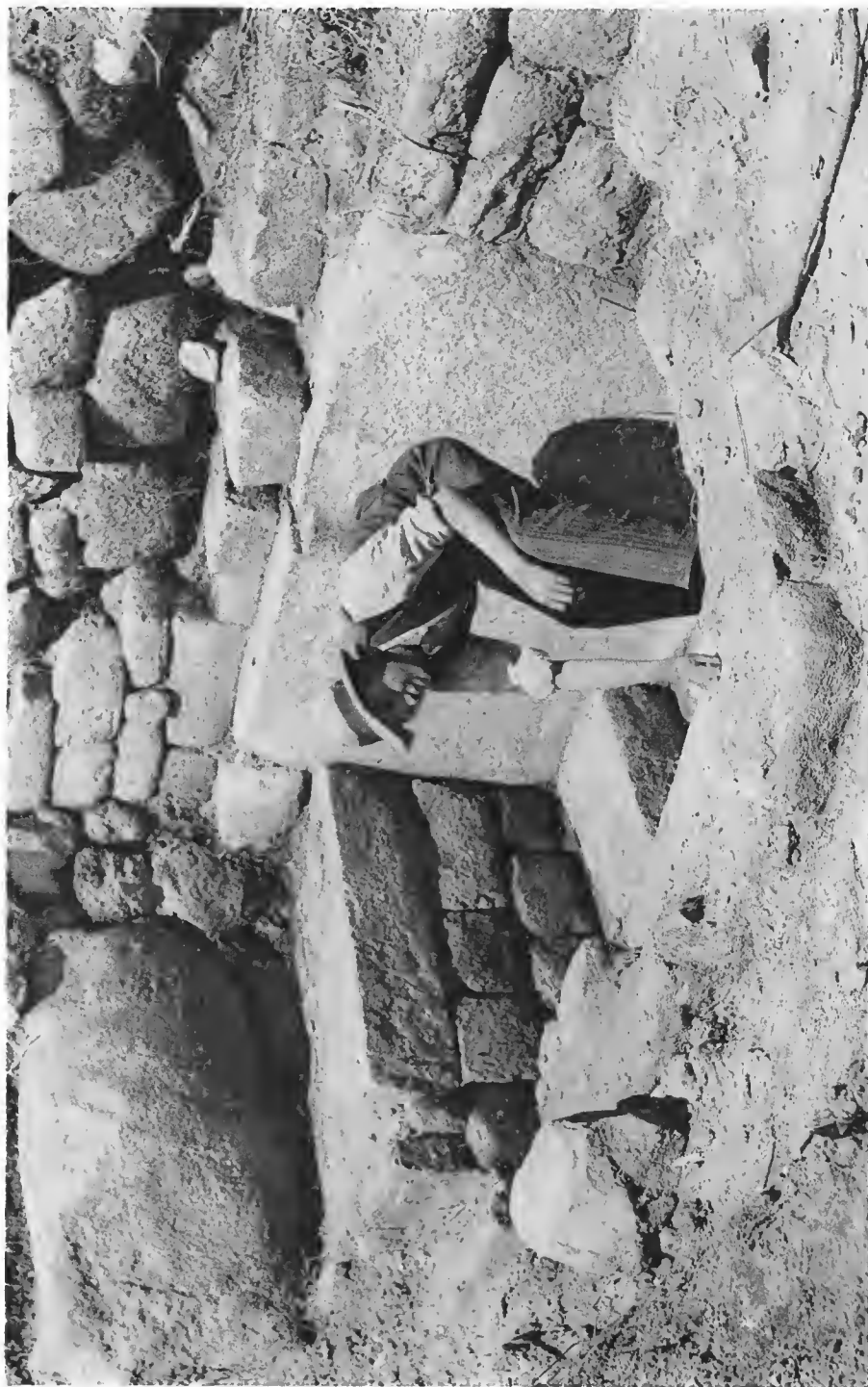
BATHS 1 TO 5 AT CHOQUESUYSUY



BATHS 1 TO 5 AT CHOQUESUYUY



BATHS 2 AND 3 AT CHOQUESUY



BATH 2 AT CHOQUESUY



ROAD BEHIND HOUSE GROUP 5 AT CHOQUESUYSUY



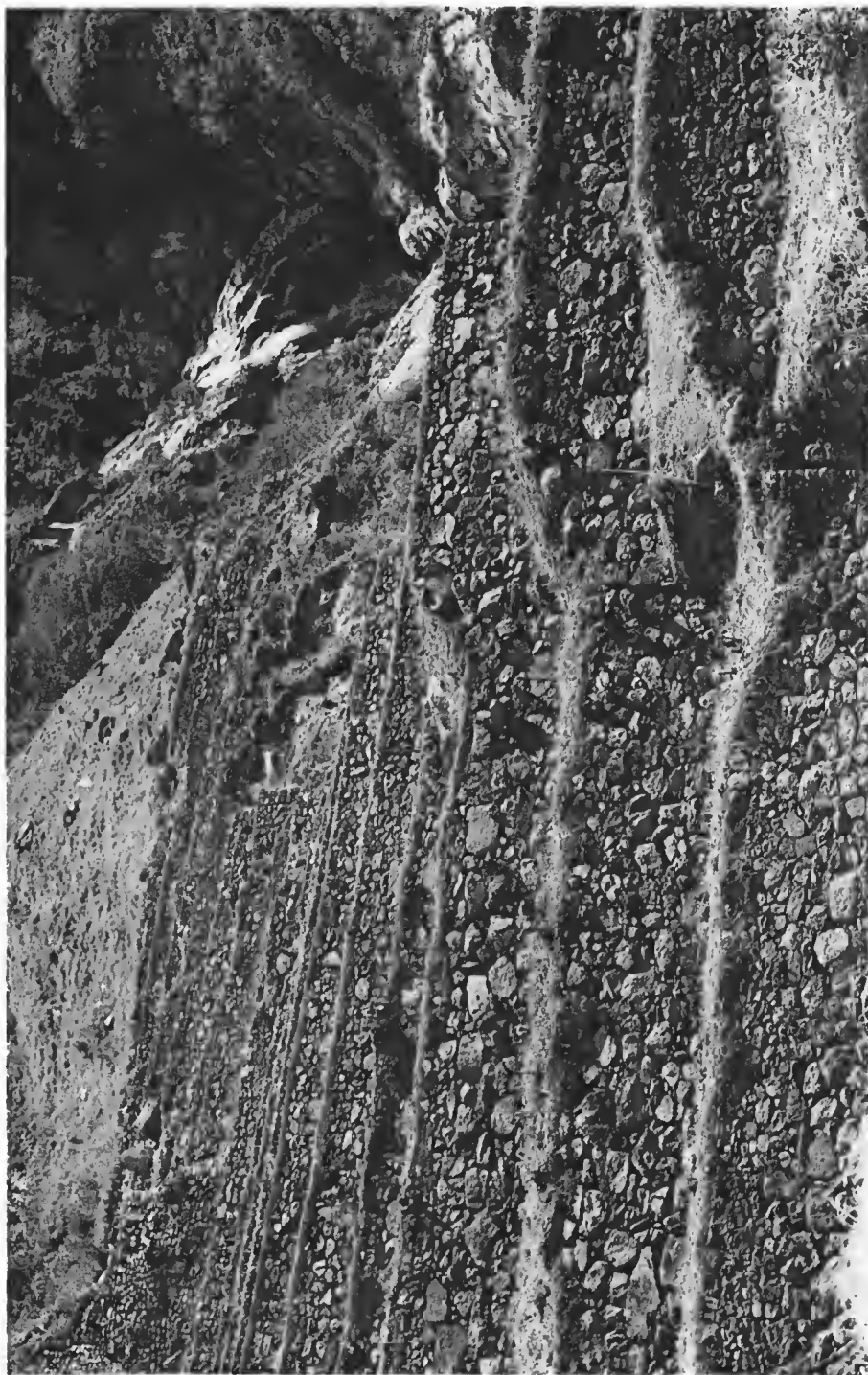


MONOLITHIC STEPS IN THE QUEBRADA OF CHOQUESUYUY



STAIRWAY BETWEEN HOUSE GROUPS 4 AND 5 AND 6 AND 7 AT CHOQUESUYSUY





EASTERN TERRACES AT CHOQUESUYUY



MASONRY IN THE TERRACE WALLS AT CHOQUESUYSU



GROOVES IN TERRACE WALLS AT CHOQUESUY



MASONRY DETAILS AT WIÑAY WAYNA

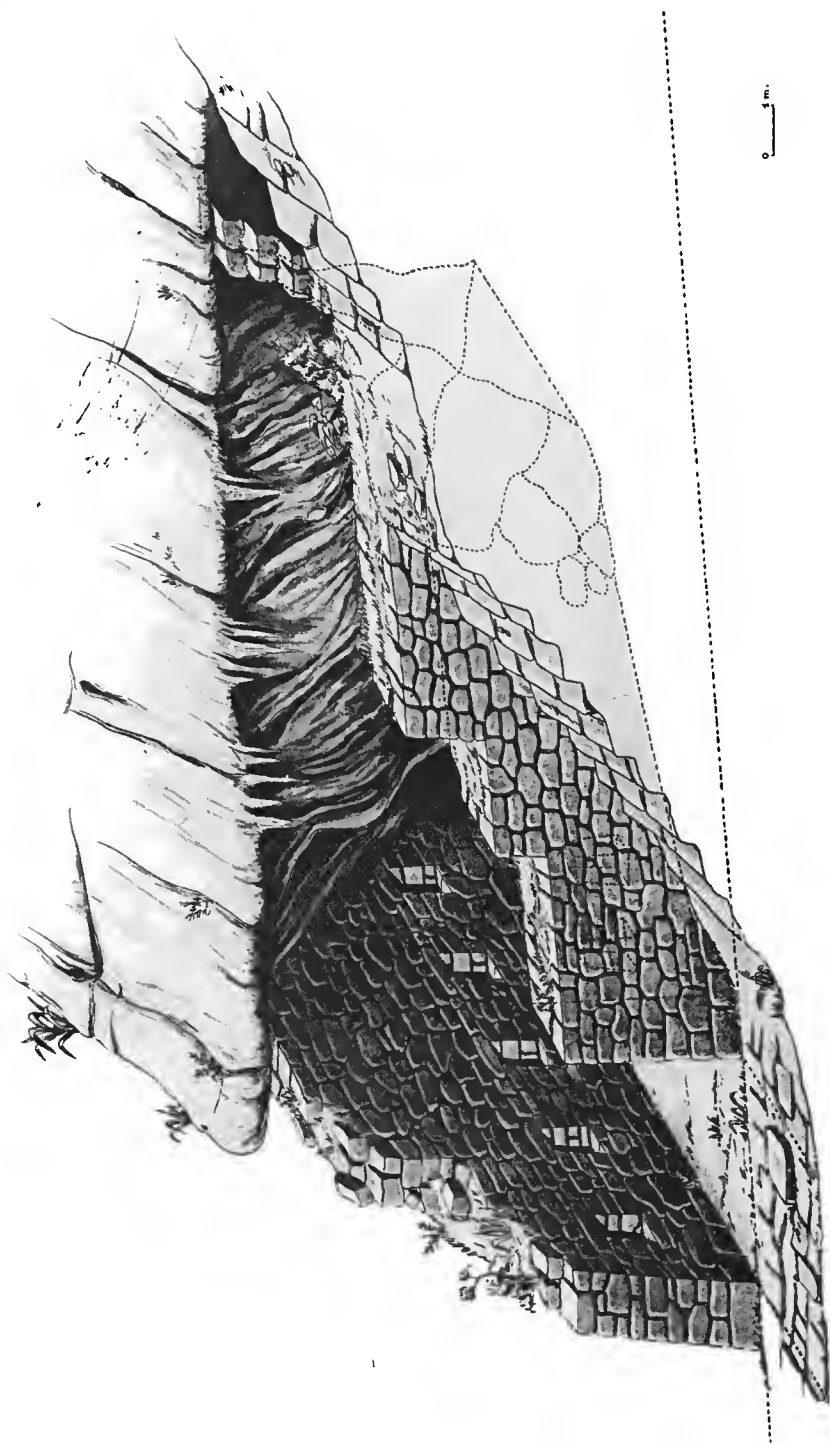




GABLE WALL AT WIÑAY WAYNA



"FORTRESS" NEAR INTY PATA



ISOLATED HOUSE BETWEEN PHUYU PATA MARKA AND SAYAC MARKA

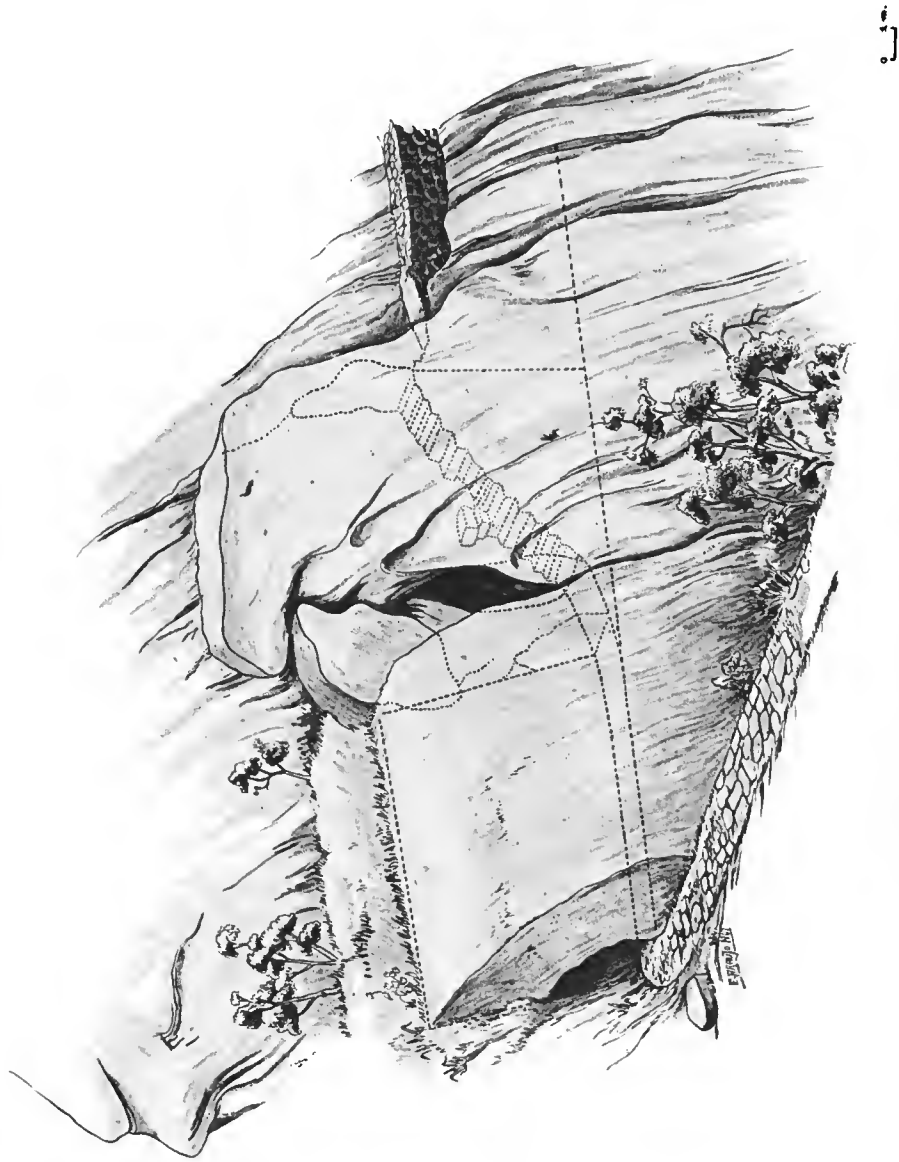




## RUTIN OF RUNCU RACCAY



ROAD BETWEEN PHUYU PATA MARKA AND SAYAC MARKA



TUNNEL BETWEEN PHUYU PATA MARKA AND SAYAC MARKA

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